# One Approach for Defining Students' Motivation in E-Learning

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*Abstract* – **The success or failure of any e-learning initiative can be closely correlated to learner motivation. This paper presents a method for defining the Students' Motivation in E-learning, which uses the main concepts of the Keller's ARCS Model and the Gagne's events. An experiment is provided and some conclusions are made.**

*Keywords* – **Students' Motivation, ARCS Model, E-learning**

## I. INTRODUCTION

The success or failure of any e-learning initiative can be closely correlated to learner motivation. Even the most elegantly designed training courses will fail if the students are not motivated to learn. Many students are motivated only to "pass the test.". The developers of e-learning course must strive to provoke a deeper motivation in learners to learn new skills and transfer those skills back into the work environment.

Some reasons for decrease of the students' motivation

- Learners can feel isolated.
- Difficult navigation within course.
- Confusing instructions for tasks.
- Irrelevant material for learners' needs and learning style
- Technical breakdowns.

As a first step, the e-learning course developers should ask the prospective learners questions such as:

- What would the value be to you from this type of course?
- What do you hope to get out of this course?
- What are your interests in this topic?
- What are your most pressing problems?
- What is your learning style?

The answers to these types of questions are likely to provide insight into learner motivation, as well as desirable behavioral outcomes.

### MOTIVATION MODELS

According to [1,2,3] the most popular motivation models are:

- **The Time Continuum Model**

The model is presented in the form of a handbook for developing instruction and draws on approaches from linguistics, cognitive psychology, and motivation research. The model is not based on any one scientific theory or philosophy. Wlodkowski's Time Continuum Model of Motivation identifies three critical periods in the learning process where motivation is most important. Those periods are the beginning of the learning process, during the learning process, and at the end of the learning process. Each of those three periods has two distinct factors associated with it, yielding six basic questions to aid motivational planning. The factors to be considered at the beginning of the learning process are attitudes and needs. When planning the beginning of a learning experience, the designer should consider how the instruction will best meet the needs of the learners, and how a positive learner attitude can be developed. It is suggested that when possible, the instruction should focus on the physiological needs of the learners and experiences familiar or relevant to the learners. The instruction should allow for choice and self-direction in assignments. A needs assessment should be performed prior to developing the instruction to aid in appropriate planning. Stimulation and affect are to be considered during the learning experience. To maintain a stimulating learning environment, learner participation via questions, humor, varying presentation style using body language and voice inflection, and the use of different modes of instruction from lecture to group work to class discussion are strategies suggested. Wlodkowski's primary strategy is to make the learning experience as personalized and relevant to the learner as possible. Finally, competence and reinforcement are to be considered at the end of the learning experience. Frequent feedback and communicating learner progress are the author's main methods for developing confidence in the learners.

- **Keller's ARCS Model for Motivation and Gagne's events of instruction**

John Keller synthesized existing research on psychological motivation and created the ARCS model. ARCS stand for Attention, Relevance, Confidence, and Satisfaction.

**Attention**

The first and single most important aspect of the ARCS model is gaining and keeping the learner's attention, which coincides with the first step in Gagne's model. Keller's strategies for attention include sensory stimuli, inquiry arousal (thought provoking questions), and variability (variance in exercises and use of media).

**Relevance**

Attention and motivation will not be maintained, however, unless the learner believes the training is relevant. Put simply, the training program should answer the critical question, "What's in it for me?" Benefits should be clearly stated.

**Confidence**

The confidence aspect of the ARCS model is required so that students feel that they should put a good faith effort into the program. If they think they are incapable of achieving the

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objectives or that it will take too much time or effort, their motivation will decrease.

**Satisfaction**

Finally, learners must obtain some type of satisfaction or reward from the learning experience. This can be in the form of entertainment or a sense of achievement. A self-assessment game, for example, might end with an animation sequence acknowledging the player's high score. A passing grade on a post-test might be rewarded with a completion certificate.

This model is not intended to stand apart as a separate system for instructional design, but can be incorporated within Gagne's events of instruction.

**Gagne's nine learning events** are the most popular and effective model for creating e-learning contents. Gagne proposed that the content should have nine distinct instructional events to be effective. They are:

1. Gaining attention (reception)
2. Informing learners of the objective (expectancy)
3. Stimulating recall of prior learning (retrieval)
4. Presenting the stimulus (selective perception)
5. Providing learning guidance (semantic encoding)
6. Eliciting performance (responding)
7. Providing feedback (reinforcement)
8. Assessing performance (retrieval)
9. Enhancing retention and transfer (generalization).

## II. METHOD FOR DEFINING THE STUDENTS' MOTIVATION IN E-LEARNING, WHICH USES THE MAIN CONCEPTS OF THE KELLER'S ARCS MODEL AND THE GAGNE'S EVENTS

For defining the students' motivation in e-learning, we use as a base the ARCS model and the Gagne events. The reason for this choice is that these models can be easier implemented and applied according to the specific nature of the e-learning process.

After finishing given e-learning course the students could be kindly asked to fulfill a questionnaire, based on the concepts of the Keller's ARCS Model and the Gagne's events, in order their motivation to be defined. The results of this investigation will be very useful for the course developers (teachers, trainers or software developers), because they will obtain important feedback information about the students' motivation and satisfaction after finishing the course. Thus the quality of the e-learning courses can be measured and if necessary the learning content can be modified. The questionnaire will consist of the following questions, divided into 4 sections, according to the Keller's ARCS Model and the Gagne's events: The scale that will be used will consist of the following possible answers:"Absolutely yes", "Yes, but not so much" and "Absolutely no".

**Attention section**

1. The course offered me appropriate for my learning style e-materials.
2. The interface design and navigation were easy to work with.
3. The visual aspect of the content (i.e. rite size and color of fonts, proper line spacing,, relevant diagrams, positioned at right places) has a positive impact on the accessibility of the content.
4. The objectives of the course are clearly stated.

**Relevance section**

1. The new content was based on my previous knowledge and skills in this field.
2. The received new information will be very important for my future work and study.
3. The course offer me links to additional information in the field.

**Confidence section**

1. During the course I felt myself sure I can manage with the problems.
2. During the learning process I received feedback and support from my teachers.
3. My success in this course is a direct result of the amount of effort I have put forth.

**Satisfaction section**

1. I am satisfied with the results of my study, after finishing the course.
2. I am feeling rewarded.
3. I will use the newly received knowledge and skills in my work.

## III. SUMMARIZED RESULTS FROM THE PROVIDED INVESTIGATION

According to the suggested in this paper method, an experiment was provided. In this experiment were invited 20 bachelor students from Computer science specialty to participate. They assessed their motivation when they finished the e-learning course, titled Software technologies. They were asked to answer the presented in the paper questionnaire.

After processing the students' answers, the following results are obtained:

**About the Attention section:**

- Most of the students (13/20) think that the course offered them appropriate for their learning style e-materials;
- The half of the students assessed the interface design and navigation as easy to work with.
- Most of the students believe that the visual aspect of the content has a positive impact on the accessibility of the content and that its objectives are clearly stated.

**About the Relevance section:**

- Most of the interviewed students think that the new content was not so much based on their previous knowledge and skills in this field and it was a little bit difficult for them to start learning.
- The half of the students does not know for now where they can apply the new knowledge.
- 14 of the students think that the course offer them enough links to additional information in the field.

**About the Confidence section**

- During the course 11 of the interviewed student felt themselves sure they can manage with the problems
- During the learning process all of the students received feedback and support from their teachers
- Half of the students think that their success in this course is a
- direct result of the amount of effort they have put forth. The other 10 are not sure that this was the main factor for success.

**About the Satisfaction section**

- All of the students participating in this experiment are satisfied with the results of their study, after finishing the course.
- 12 of them are feeling rewarded.
- 15 students are not exactly sure where they will use the newly received knowledge and skills in their work.

**Summery of the results**

According to the results from the experimental inquiry it could be concluded that the e-learning course "Software technologies" motivates in grate degree the students. The strong sides of it are the high level of personalization, the feedback with the teachers, the good navigation and interface and the opportunity for additional information. The weak aspect of this course according to the students' opinion is that there is no enough information about the application in their real work. It is good if in the course description the developers add practical examples about where in the students' future work this knowledge will be useful. Also some information for the needed basic knowledge and skills before entering the course is necessary to be presented

On fig.1-8 are visualized the summarized results.

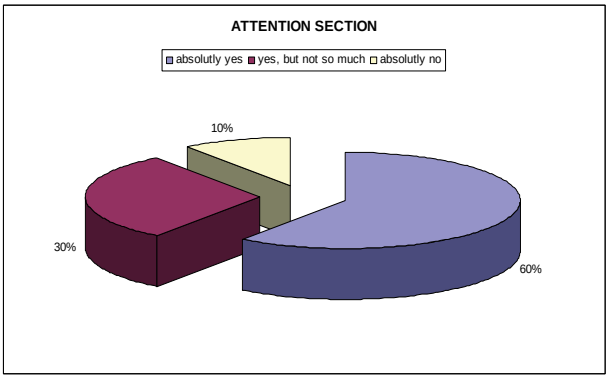


Fig. 1 Results from the students' opinion concerning the Attention in%

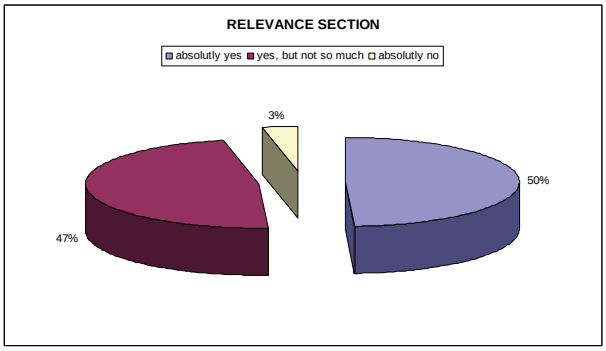


Fig. 2 Results from the students' opinion concerning the Relevance in %

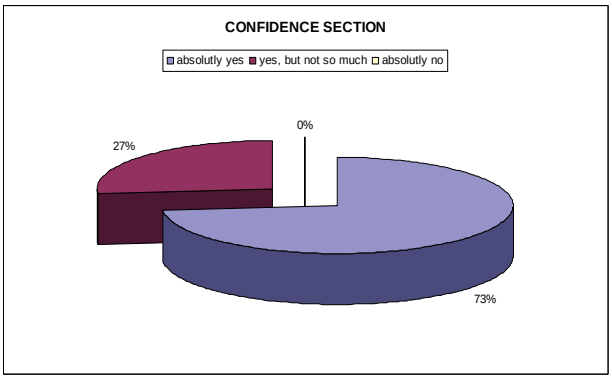


Fig. 3 Results from the students' opinion concerning the Confidence in %

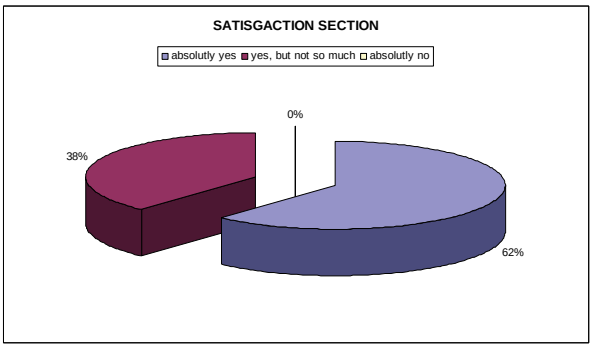


Fig.4 Results from the students' opinion concerning the Satisfaction in %

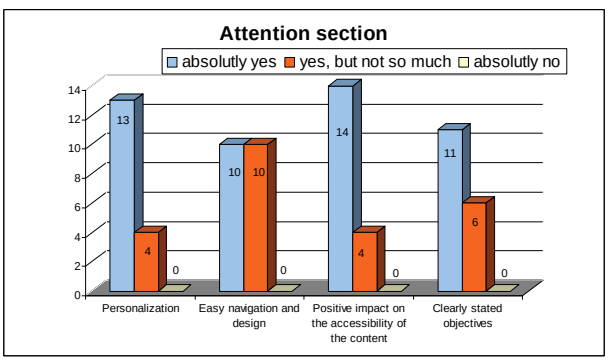


Fig.5 Results of the criteria in the Attention section

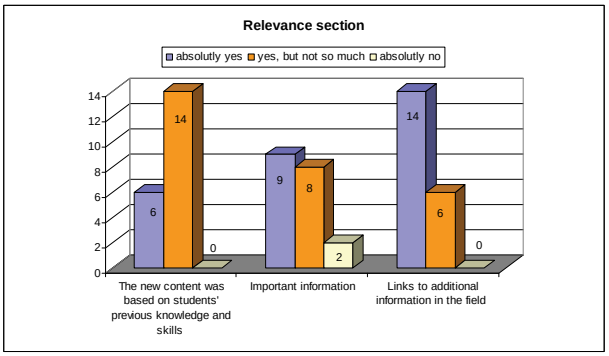


Fig.6 Results of the criteria in the Relevance section

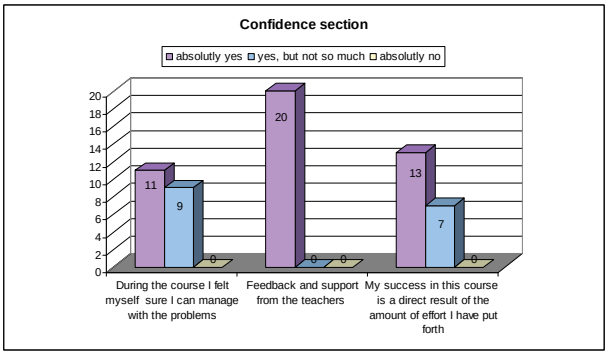


Fig.7 Results of the criteria in the Confidence section


Fig.8 Results of the criteria in the Satisfaction section

## IV. Conclusion

One of the most important themes in psychology of learning is motivation. In order to include motivational factors in online learning, factors known as depending on the learner, assessment of the learner's motivation is required and this is the problem addressed by this research.

As a result from the presented in this paper research some important concepts for keeping the learners motivated could be summarized in the following list:

- Defining the target audience and their learning preferences;
- Course designers must realize that learning styles are different: visual learners, kinesthetic learners, auditory learners. E-learning courses must cater for all otherwise learners will lose interest;
- Defining clear learning objectives of the course;
- Use of interactivity/Games/Simulations - using interactivity in e-learning contents has many benefits. It keeps the learners involved, breaks the monotony of a single way communication, enhances the learning experience by participation and facilitates active experimentation;
- Use of real life scenarios - Cognitive Theories say that any new information is compared to existing cognitive structures called 'schema'. Meaningful information is easier to learn and remember. It is very important for the students to know where they can apply the newly received knowledge.
- Assessment of the students' motivation.

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