

Motivation for Trainee Teachers: Non-Computing Background Learn Action Script

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Abstract— Programming has become significant to students in the area of liberal arts and humanities. This research introduces the idea of engaging those students through learning flash action script production. To motivate these students to learn technical skill is to provide them an appropriate teaching instrument for learning. Developing suitable teaching tools for learning flash requires students' engagement and motivation. The appropriate design of teaching instrument will guide the students along the journey of learning action script.

Keywords- motivation, computational thinking, non-computing

I. INTRODUCTION

Motivation is arguably the most significant aspect in learning, without it students will find it hard to learn. The main idea behind this research is to analyze the factors that keep the motivation among the students from a non-computing background to learn the production of lesson tool using flash. Students tend to learn in different method and that they wish to use some of teaching resources as well. [1] say that some researchers agree on the fact that learning materials should not just reflect of the teacher's style but should be designed for all kinds of learning styles. Moreover, by providing decent teaching materials and learning facilities, sufficient motivation is important for learning. At University-level education the gap between the application-oriented expectations of the learner and the theory-focused lecture content may cause considerable demotivation of a number of students. Offering a worthy teaching materials and learning facilities adequate motivation is essential for learning [2]. Programming is classified by being more practical than theoretical. It is a topic that must be learnt by 'doing' rather than 'memorizing'. In order to maintain or raise students' motivation it is important to allow students to enjoy seeing the final product [3].

II. RESEARCH BACKGROUND

Numerous studies argue that students view computer programming as a purely technical activity rather than a set of combined problem-solving skills [4]. Many researchers agree on the idea that learning materials should not just reflect the teacher's style but should be designed for a wider range of learning styles [1]. Today we often see students in classes simply quitting from trying to solve the tasks given because they do not see the solution immediately or their first attempt

does not work as expected [5]. Trainee teachers at Educational University in Malaysia (UPSI) with non-computing background have the interest to learn action script programming but the teaching instrument used was not attractive and motivating (as discussed in section findings). Developing the right teaching tools for learning flash requires students' engagement and motivation. In programming module, an instructor has to persuade the students to agree to practice by engaging in writing programs [6]. In a practical discipline, for instance in Flash programming, even when there is no precise evaluation's credit available students must be motivated to spend time practicing the skills. It is often possible to observe a person's performance and from that to infer their likely motivation. Some general categories of motivation can be observed and identified.

Moreover, a researcher explores to seek an identity approach to teach these students and to find out to what extend the trainee teachers in Malaysia can be taught technical subjects especially flash action script programming. [7] stated that students from a various background are able to use abstraction, automation and analysis to create the original products when given access to rich learning environments that include skilled teachers, developmental considerations and usually include technology [6] states that the goal of a teacher should not just be to transfer knowledge to their learners but to motivate them to learn and to help them to realize the relevance and benefit of learning. Students must be motivated in order to succeed in any academic task. The motivation of students is a key issue if they are intrinsically motivated to learn (a happy side effect for an instructor is that highly motivated student will probably be more pleasing to teach). Poor instruction can deactivate learners. Designing instruction to be motivating can be a systematic process thus can lead predictably to more motivating instruction [8]. Motivation is intertwined with effectiveness and learner performance and more effective instructional materials will generally motivate more students further strongly than ineffective ones.

At the university-level education, the gap between the application-oriented expectations of the learner and the theory-focused lecture content may cause considerable demotivation of a number of students. Personalizing an educational activity

in terms of themes, objects and characters of high prior interest to students should therefore enhance intrinsic motivation [9].

The key to inspiring students through truly motivational instruction is to maximize the positive effects of each of these factors. Intrinsic and extrinsic types of motivation have been studied and the distinction between them has shed important light on both developmental and educational practices [10].

Based on the researcher's experience conducting action script classes with non-computing background students at Sultan Idris Educational University (UPSI) Malaysia, 90% of them agreed that they would be motivated to learn how to use flash action script development if the right learning instrument is provided. Presently this group of students were taught by using a traditional approach using a power point presentation. However, at the end of the semester students were found that the level of interest in the subject dramatically decrease compared at the beginning of the semester. This problem occurred when they feel 'lost' especially the concept of syntax programming were not being explained effectively. They used to copy and paste the action script rather than understand the concept of doing the syntax. Programming is classified by being more practical than theoretical. It is a topic that must be learnt by 'doing' rather than 'memorizing'. Nevertheless, numerous studies argue that students view computer programming as a purely technical activity rather than a set of combined problem-solving skills [4].

The emergence of numerous learning style models over the past 25 years has brought increasing attention to the idea that students learn in diverse ways and that the purely verbal approach to teaching does not work for every student or even most students [11]. Based on *Bloom's Taxonomy*, the process of learning can be described as being comprised of three areas, which are affective, cognitive and psychomotor [12]. Figure 1.1 shows how Bloom's revised taxonomy can be applied to current research where the learning environment for motivating will be adopted by using the teaching tool. The Bloom Revised Taxonomy will be used as a learning model for the teaching plan. [13] says that the revised bloom's taxonomy provides a powerful tool to fit teachers' needs.

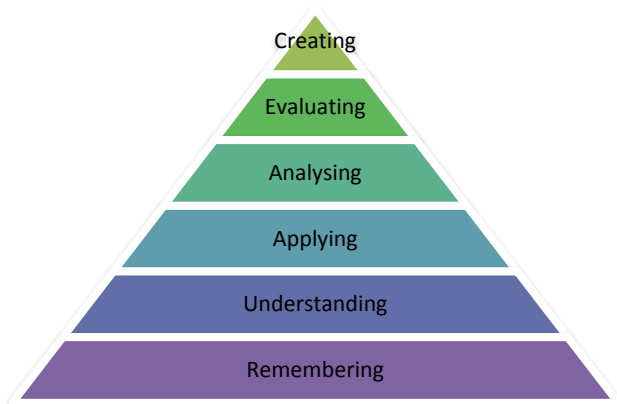


Figure 1.1: Revised Bloom Taxonomy Approach

The propose research define the definition on each elements of the revised Bloom's Taxonomy for the current learning action script.

- *Creating* - Use the motivating approach and develops a teaching instrument resulting in deeper understanding of the fundamental process.
- *Evaluating* – Assess the solution
- *Analyzing* - Begin to realize why their design is not achieving their end. Use trial and error to correct it
- *Applying* - Construct a teaching tool by copying a previous example.
- *Understanding* - Attempt to understand the flash script syntax but not why it is used.
- *Remembering* - Student memorises flash script syntax and tools from lecture.

III. ADAPTING MOTIVATION APPROACH

Flash action script is a programming language that embeds multimedia elements such as graphics, audio and video besides the programming code. [14] say that action scripts are easy to understand because user can see immediate visualization or result on syntax immediately. Action scripting is one of the subjects that being offered to non-computing background students at UPSI Malaysia. The key to inspiring students through truly motivational instruction is to maximize the positive effects of each of these factors. Intrinsic and extrinsic types of motivation have been studied and the distinction between them has shed important light on both developmental and educational practices [10].

A. Extrinsic

Extrinsic motivation is the desire to complete the course in order to attain some expected reward. Students can perform extrinsically motivated actions with resentment, resistance, and disinterest or with an attitude of willingness that reflects an inner acceptance of the value or utility of a task [10]. An extrinsically motivated student may for instance do very little for which there was no comprehensive evaluation credit. The primary motivator is the career and associated rewards that will follow from the successful completion of the course [6].

B. Extrinsic

Intrinsic motivation derives from an interest on the subject. The person is moved to act for fun [9] and it involved the personalization of several incidental features within the learning context [10]. A student with intrinsic motivation would be anticipated to read on the subject, perform more on their own initiative, and from their own views about the material they were taught. Intrinsic motivation has emerged as an important phenomenon for educators because its results in high-quality learning and creativity [15].

Knowing the difference between intrinsic and extrinsic motivation and what substitute each of them is an important concern for educators who cannot depend on intrinsic motivation to raise learning. Because many of the tasks that educators want their students to perform are not inherently interesting and enjoyable, knowing how to promote more active and volitional forms of extrinsic motivation becomes an essential strategy for successful learning [10].

One of the motivation principles stated that changes to the organization and presentation of content can stimulate the learner's attention and curiosity. This is the most effective approach to teaching the students in that students are rapidly familiarised the content provided with examples then given learning exercises. 'In order to maintain or raise students' motivation it is important to allow students to enjoy seeing the final product' [3].

IV. ANALYSIS

Experience at Sultan Idris Educational University (UPSI) Malaysia has led to a concentration on students at that university as a sample group of those motivated to learn how to develop Flash Action Scripts. An initial survey has been undertaken to extract the ideas from trainee teachers' thoughts and feelings on learning flash action script in order to get an understanding of the experiences of the non-technical users. A survey has been undertaken of those students on a current Masters level course to ascertain their level of motivation and attitude towards the current teaching they receive. The questionnaires were distributed to the trainee teachers at UPSI Malaysia and master in education at Nottingham Trent University, United Kingdom students. It was made up of a series open-ended question and allowed students to give their comments and suggestions if desired.

The results show that students are intrinsically motivated to learn and are motivated to do well in preparing the lesson plan in other subjects too. They believed that they might use the new approach as one of their teaching instruments instead of the current conventional method used.

A. Questionnaires

An open-ended questionnaire was developed to discover participant responses to the proposed teaching tool framework. The questions will ask user about their current experience learning action script and they provide some interesting comments on future ideas for teaching as well. This questionnaire was reviewed before submission for Ethical review approval, as required by the School of Computer Science, University of Nottingham, United Kingdom.

B. Interviews

At the end of the study participants shared their experience using the conventional approach used for teaching flash and also their comments for the improved teaching tool. For the first phase of the research, informal interviews were set up to get the information on participants' computational thinking teaching ideas on learning flash action script, likes and

dislikes, as well as help to formulate an initial requirement specification for the proposed framework or tool. The results from the interview also were aimed at finding out how the users interacted with the prototype and detected its weaknesses in order to evaluate the user acceptance towards of the prototype.

C. Interactive video lecture

[16] states that it is not a good practice to conduct the lecture in class by writing on a board. Video is a medium who can convey a message to the users in an attractive manner. 'Interactive video increases learner-content interactivity thus potentially motivating students and improve learning effectiveness' [17]. The feedback from the pre-test on the video lectures showed that the value of video for learning effectiveness was contingent upon the provision of interactivity. It implies that individual control to the content may lead to better learning outcomes and satisfaction. Experience showed that their performance in labs was indicating that they had not been motivated and thinking computationally in their design but had rather been trying to copy what they had seen in class. This has led to a proposal for a learning tool that will present the process of learning to them through interactive video as shown in figure 1.2.

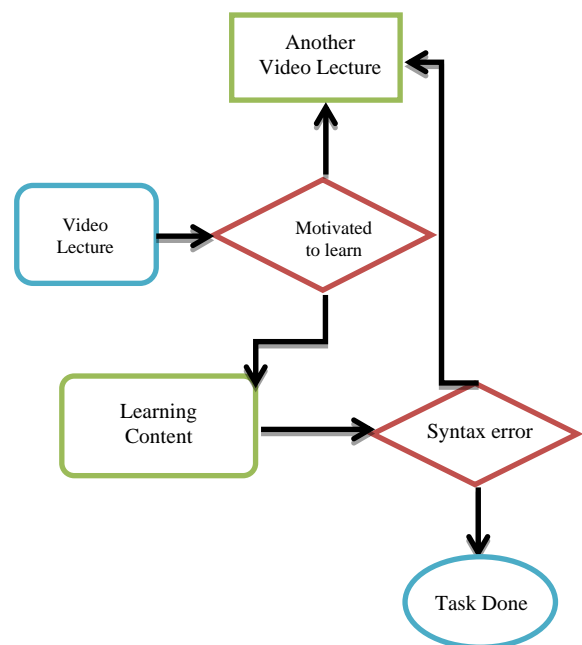


Figure 1.2: Flow chart of the proposed teaching tool

V. FINDINGS

UPSI is one of the leading providers of teachers' education in Malaysia, and the majority of the students will become teachers. The data on ten educational institutions in the United Kingdom and on eighteen educational universities in Malaysia

were used in the analysis. The percentage of the universities that do not have the ICT subject is considered high at 60%, and this figure shows that the ICT subject is not generally being taught as a specific subject to the university level for Master in Education courses. [18] said that the curricular in most countries deal with ICT as tools to serve other sciences. ICT subjects should be seen as a goal to attract young creative students to have an interest in technology and education.

From the current survey more than 80% of the educational institutions in Malaysia do not have IT course as a compulsory subject. For instance, UPSI is an educational university which trains teachers but the ICT subjects such as the multimedia course are listed only as elective subjects that can be chosen by the students based upon their interest. [18] stated that in a new model, elementary school students will be introduced to foundational concepts in computer science by integrating basic skills in technology with simple ideas about computational thinking. With the new learning tool used for teaching the students will be more interested to study the subject thus teachers will be more likely to design their own lesson plan. These show that teachers need to think computationally in order to motivate their students to learn the subject effectively.

An analysis was made with a group of 62 students, who gave their opinions on questionnaires related to what they had learnt and directly related to their studies. The students aged between 19 and 25 currently the trainee teachers at UPSI, Malaysia subsequently responded to a series of questions giving us their opinions, advice, comments and recommendations on the use of action script software as a teaching tool in a classroom. The following codes were generated from the respondent's answers:

- *Interesting* – The students find flash action script amusing and they consider this is a positive characteristic. 98% of the respondents agreed that flash action script is entertaining software that should be learnt by trainee teachers too.
- *Engagement* - All of the respondents stated that flash software can attract attention from the students in terms of the elements embedded into it like graphics, audio and video, hence the contributions made by flash is clear: animation + interactivity and we should remember that interactivity is the greatest advantage that multimedia contribute to teaching (Lieu, 1999).
- *Motivating* – This affective characteristics of learning is highly motivating as it attracts and holds the user's attention. Making teaching and classroom learning more interactive is one of the most effective [19]. This is why effective characteristics may play a very important role in the teaching-learning process, agreed by all the respondents. These codes were used to code the answers and from the result of the findings showed that the motivation for them to learn

flash action script really high and helps to come out with their own teaching instruments too.

If non-computing students or more specific to be master in Education students were allowed to study a curriculum without programming, they would miss the defining characteristics of one of the media of interest, which again would reduce their analyses and products of the computer to replicas of old media works. Programming is important for the students in the area of art and digital designers use computer applications today to create their work [20]. The introduction of these new technologies is also intended to fill the gap caused by the lack of equipment in many universities and thus would otherwise require very expensive equipment can be transmitted to the students' virtual form [21].

Experience showed that their performance in labs was indicating that they had not been thinking logically in their design but had rather been trying to copy what they had seen in class. This has led to a proposal for a learning tool that will present the process of learning to them through interactive video.

This tool hopes to increase the motivation among trainee-teachers whereby they can invent their own module to their students. Hence the learning outcome will be increased and level of understanding will be better than previous methods used. This approach has a good potential to promote learning based of the finding received from the respondents.

[22] says that "... like motivation, self-efficacy and satisfaction with course activities and demonstrate an alternative model to make introductory programming courses more productive and attractive, increase motivation for learning and decrease dropout levels among students.".

VI. CONCLUSION

Being literate in information technology is important not only for computing majors but also for non-computing major. [23] presented a pedagogical strategy to improve student's motivation levels in programming courses. The level of motivation should reach to get truly involved on the subject and prevent them from quitting the course even before they sincerely try to overcome the natural and inherent learning difficulties created by programming characteristics. [20] stated that in order to maintain or raise students' motivation it is more important to allow students to enjoy seeing the final results (artwork) of the programming rather than to make them strive to create more beautiful work. The blended learning tools can be the best teaching instruments that increase student's interest to learn technical subject specifically action script programming. In addition, blended courses can create powerful learning opportunities, but they have to be well designed and facilitated in order to deliver their benefits. The teaching model proposed in this research hopes to be the successful tool for enhancing the learning skills capability and

simulate students' passion for learning how to increase their motivation to learn technical subject.

ACKNOWLEDGEMENT

Special thanks dedicated to the trainee teachers and students in UPSI Malaysia, who agreed to take part in this research. Thank you for Assoc. Prof. Dr. Peter Blanchfield for his guidance throughout the research from University of Nottingham, United Kingdom.

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