

Scratch-Quiz for schools?

*Edutainment and gamification of formal education curriculum –
Are low-cost solutions with a high degree of adaptivity possible?*

A «quiz-motor» for making quizzes about any subject in education based on Scratch as software and Buzz!-buttons as hardware.

Olav-Andreas Marschall, math teacher

Most quizzes serve mainly entertaining purposes. But when teachers ask questions in classrooms, these questions are often similar to the questions we find in certain knowledge quizzes. In the classroom pupils find excitement in trying to be the fastest to answer questions. It is a rudimentary type of interactive game that is rather well-known from tv-shows. Is it possible to bring such excitement and real-time-thrill to formal schooling systems?

On gaming platforms, Buzz!-controllers for Playstation 2/3 are very much diffused in homes. But the accompanying quiz-software mostly hold titles like «music», «hollywood», «popquiz», «sportsquiz» and so on.



One exception is found in [School quiz](#) by Relentless Software for the British Buzz!-market. Reviews were rather positive:

The Sunday Times gave it top marks of 5 stars and said "The Schools Quiz is certainly no substitute for homework or proper revision, but it is a good way to reinforce what children have already learnt in class" [2] *The Guardian* gave the game 4/5 and said "This game is a great way for both teachers and parents to make learning fun" [3]



In different modes or rounds, different game-models are applied to 5000 questions. But School quiz is aimed at youngsters, pupils aged 7-11.

For schools with more mature pupils or more theoretical disciplines there are no titles on this platform. Neither is there much hope that such titles will appear in the near future.

But Buzz!-controllers can act as pc-compatible controllers with some software adaptation (Buzz!-controllers have USB-connectors built-in already).



Pushing those big and colourful buttons can in software be rerouted to messages that Scratch input-objects can sense as e.g. «g». Whenever a the third button (red) on the second controller is pushed, a message «g» will be transmitted and received by a dedicated Scratch-object.

Knowledge from school subjects, such as history, biology and math can be imported into Scratch-lists.

A quiz-motor will generate new questions at random from its knowledge-lists – consisting of questions, 4 answers and numbers pointing to the correct answers. Other lists update which questions have been used already and may then assist in picking only «new» questions for candidates.

Once we have a basic Buzz!-interface and question-motor, many kinds of questions can be accommodated, literally coming from any school subject.

I present such a quiz-motor (generalized Buzz!-quiz) and some adaptations as examples from history, biology and math, quizzes that I believe could be used in regular high school lessons.

Needless to say, Scratch 1.4 and even more so Scratch 2 will allow many facets of gameplay based on different gamemodels and applications of the basic button-pushing-competition.

Buzz!-controllers come in wireless and wired configurations. Up to 4 players per set can compete, but with more than one set of buzzers, small classes can easily play/compete.

With the upcoming cloud-based-variables (and without need of Mesh in v1.4), Scratch will allow high-score-memorizing across time and place. Different classes or pupils from different schools may then be able to compete in answering correct and fast.

Buzz!-controllers are low-cost controllers, but their future accessibility might still be a concern to some. Therefore, other possible realizations are discussed as well, such as push-buttons connected through low-cost Arduino-controllers or the nanoBoard for Scratch (Japan).

A possibility is to standardize on a handful of gamemodels realized with push-button-interface and then build templates for easily generating valid questions/answers in order to open up Scratch-Quizing to anyone interested.

I will also present experiences from my own teaching using Scratch-Quizes in classrooms and pupils (age 16).

Abstract

In the presentation I will present the need, the idea, the technology and examples of quizzes with Buzz!-controllers - realized in Scratch - with buzzers (big buttons) as known and popularized on various gaming platforms. This type of quiz presents four alternative answers, and lets contestants compete in pressing the correct button - the right answer - as fast as possible. Several types of score-counting are possible. Use of avatars on stage as well as global high-scores (cloud-variables in Scratch 2) exemplify the manifold of educational uses of «Scratch-quizes» inside class-rooms. Such applications may contribute to the general trend of «gamification» in formal schooling systems. Can such applications contribute to make training and drill sessions more stimulating, competitive and engaging? Can low-cost technology based on Buzz!, Arduino or nanoBoard plus some rather straightforward programming in Scratch really generate excitement in pupils even if questions come from theoretical subjects such as history, biology or math?

Author

I am 50 years and teach math in a high school in Northern Norway. I have a Master in computer science specializing on machine learning and artificial intelligence. My master thesis is about machine composition and listening, integrating music and computer programming (Lisp).