

**University of
Northampton**

The Effectiveness of a Quiz in an Educational Video

Paul Rice, James Blackmore Wright & Paul Beeson



**University of
Northampton**

Background

Design

Results

Recommendations

Further Research



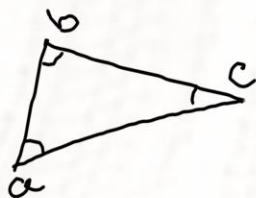
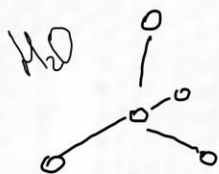
Why are we doing this?



$$\sin(\pi - \alpha) = \sin \alpha$$

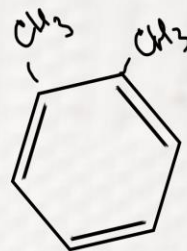
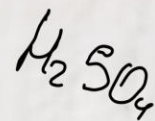
$$E = mc^2$$

$$e^{i\pi} + 1 = 0$$



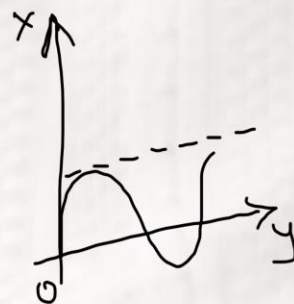
$$a^2 + b^2 = c^2$$

$$\sin^2 x + \cos^2 x = 1$$



$$\pi = 3,14$$

$$c = \sqrt{a^2 + b^2}$$



$$y = \frac{1}{1+x}$$



A yellow star with a white outline and the text "there was an attempt" inside.

there was an attempt

Project background

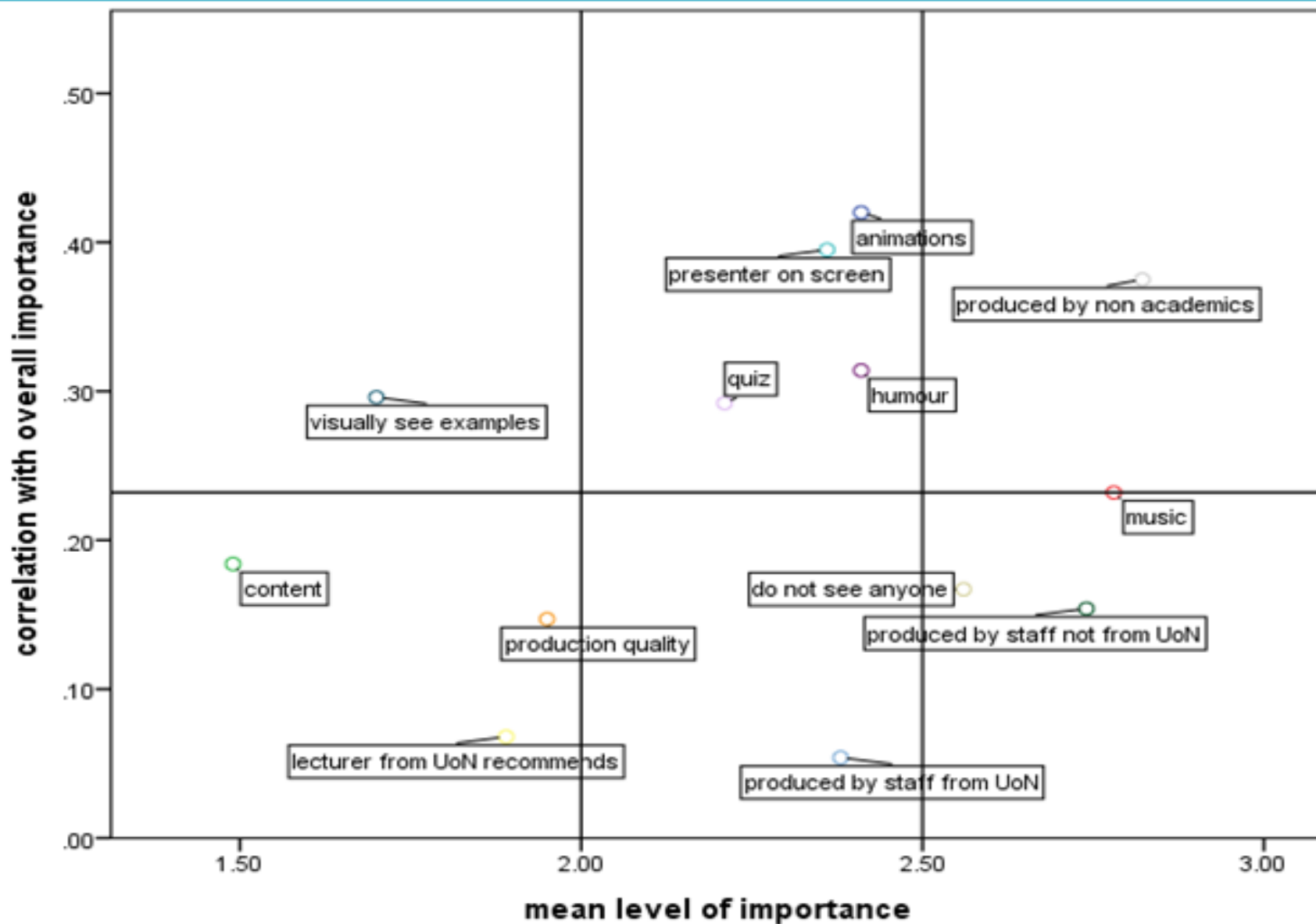
The screenshot shows the Skills Hub website for The University of Northampton. The header includes the university logo and the Skills Hub title with the tagline 'schools . students . researchers . the community' and 'Library and Learning Services'. A breadcrumb trail reads: Home / Essential Tools / Academic Techniques / Dissertations and Projects / One-to-One Help. A search bar is located on the left. A vertical list of search terms is on the left side, including: academic journal, academic writing, articles, bibliography, books, citing, constructing an argument, critical thinking, dewey, Dissertation, drop-in sessions, e-books, equipment, essay writing, evaluating, information, exam techniques, final year, finding information, find my reference, first year, google, searching, grammar, group, study room, harvard, referencing, History, referencing guide, international journals, library account. The main content area features a large image of a library staff member in a green vest with 'Library' on the back, assisting two students. A text overlay on the image reads 'About the Skills Hub' and '9 September, 2013'. Below this is a row of six small thumbnail images. At the bottom, there is a 'Recent Articles' section with a thumbnail and a 'Follow @UniNorthants on Twitter' section with a 'Tweets' list showing a tweet from Robert Gallagher (@PoisonDevils) 26m ago.

- 70 OERs
- 50 video OERs created in-house
- 600,000 + views to date

CHANGE

The image shows the word "CHANGE" constructed from wooden blocks on a wooden floor. The letters are arranged in a row: C, H, A, N, G, C, E. The letter 'G' is positioned on top of the second 'C' block, creating a vertical stack of two letters. The blocks are light-colored wood with black letters. The background is a plain, light-colored wall, and the floor is made of light-colored wooden planks.

Previous Research



Quizzes in Educational Videos

HINT

A hammer toe deformity is an abnormal contracture at which joints?

PIPJ only

PIPJ + MPJ

DIPJ + MPJ

DIPJ only

10 UN-ANSWERED  QUESTION 1/10

MKT1022

Video 1
15 mins, 20 secs: no
quiz questions



Seminar test 1
percentage recorded
out of 10 marks

Video 2
8 mins, 34 secs: 5 quiz
questions at end



Seminar test 2
percentage recorded
out of 10 marks

Video 3
11 mins, 1 secs: 5 quiz
questions embedded




Seminar test 3
percentage recorded
out of 10 marks

Assessed test on content
from all the videos.

Percentage recorded out of
40 marks

10 marks from video 1 10
marks from video 2 20 marks
from video 3



Number of views of
each video digitally
captured

POD 2014

Video 1
6 mins, 37 secs: no quiz
questions



Seminar test 1
percentage recorded
out of 18 marks)

Video 2
2 mins, 53 secs: 10 quiz
questions at end



Seminar test 2
percentage recorded
out of 10 marks)

Video 3
10 mins, 44 secs: 8 quiz
questions embedded



Seminar test 3
percentage recorded
out of 16 marks)

Questionnaire to
evaluate viewing
behaviours for each
video format, and
perceptions of a quiz
in a video

MKT1022 Results	Total (individual students)		
	Video 1	Video 2	Video 3
1 or more complete view plus 1 or more part view	34	23	18
1 complete view only	9	20	19
1 part view only	9	3	6
Total students watching all or part of video	52	46	43
Total students who did NOT watch any of the video	50	56	59

MKT1022 Results

Descriptive Statistics			
	Mean	Std. Deviation	N
MCQ Seminar % Video 1	26.88	9.980	32
MCQ Seminar % Video 2	34.06	13.407	32
MCQ Seminar % Video 3	49.69	16.556	32

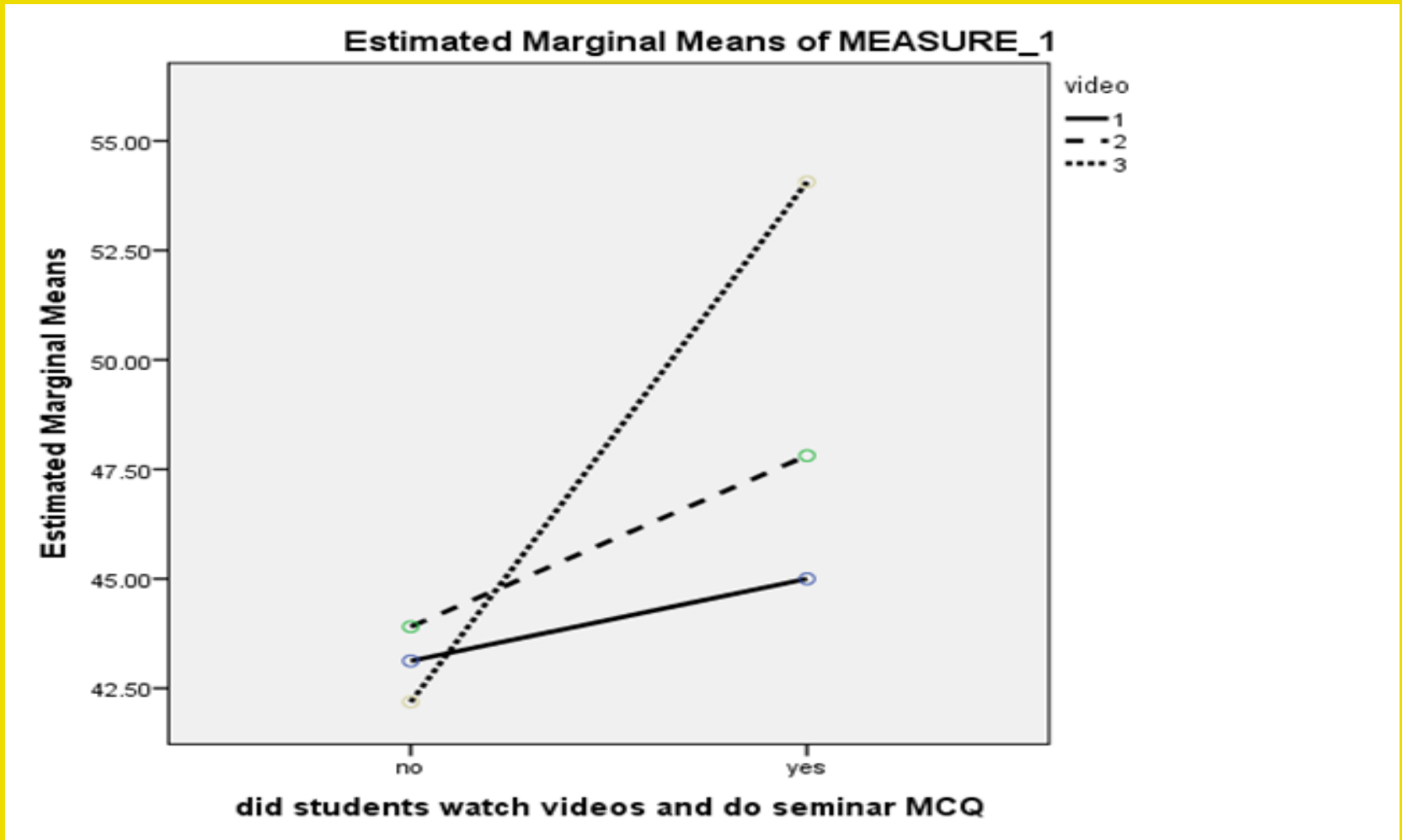
$F(2, 62) = 63.849, p < 0.0005, \text{partial } \eta^2 = 0.673$

All 3 sig diff from one another.

MKT1022 Results

Descriptive Statistics				
	did students watch videos and do seminar MCQ	Mean	Std. Deviation	N
Score from Video 1 Content % in final test	yes	45.0000	15.70905	32
	no	43.1250	17.64959	64
	Total	43.7500	16.96746	96
Score from Video 2 Content % in final test	yes	47.8125	11.49597	32
	no	43.9062	14.40538	64
	Total	45.2083	13.57080	96
Score from Video 3 Content % in final test	yes	54.063	16.3844	32
	no	42.188	15.2460	64
	Total	46.146	16.5351	96

MKT1022 Results



POD2014 Results	Total (individual students)		
	Video 1	Video 2	Video 3
1 or more complete view plus 1 or more part view	15	15	12
1 complete view only	7	8	10
1 part view only	0	0	0
Total students watching all or part of video	22	23	22
Total students who did NOT watch any of the video	1	0	1

POD2014 Results

Video	Mean MCQ score	Std dev	Min	max
1	65.23	11.63	44.4	88.9
2	75.22	14.42	50	100
3	80.98	17.22	50	100

$F(2, 42) = 11.465, p < .0005, \text{partial } \eta^2 = 0.353$

1 sig diff 2 and 3

2 not sig diff to 3.

	Usefulness of Video	Quality of learning of Video
	Mean (std dev)	Mean (std dev)
Video 1	4.18 (0.66)	4.18 (0.66)
Video 2	4.27 (0.63)	4.23 (0.69)
Video 3	4.23 (0.61)	4.18 (0.73)

However, out of the 23 students, 15 students only made positive comments, one student made both positive and negative comments, and seven students did not comment.

Themes derived for benefits of a quiz

- i) help understanding and knowledge;
- ii) increases attention and engagement;
- iii) provides immediate feedback.

Quotes received for benefits of a quiz

- *“the questions provide me a measurement of my own understanding”*
- *“they check what I understand”*
- *“the questions are useful to test my knowledge”*

- *“questions in the video makes me pay attention”*
- *“questions help me interact with the video”*
- *“quizzes make sure you stay engaged”.*

- *“I liked to know if my answers were correct”*
- *“it was helpful to get the answers immediately”*



**Important
Information**

Results Summary

- 1) For both modules, performance in the seminar test improved in scores for content from video 1 to video 2, and again from 2 to 3.
- 2) In each content sections in assessed test for MKT1022, students who watched the videos outperformed those students who did not.
- 3) There were no significant differences on seminar scores based on when the videos were watched.
- 4) There were no significant differences on seminar scores based on the number of views of the videos.
- 5) There were no significant differences in the student's quantitative ratings of usefulness or quality between the three videos.
- 6) There were many more positive statements for having a quiz in a video given in the student's qualitative comments.

Recommendations

- If content is provided to students in the form of an educational video, then it is encouraged that the video has quiz questions embedded throughout as standard.
- Distractions must be kept to an absolute minimum. This can be achieved by following the principles of multimedia learning and ensuring questions are a continuation of the video and not simply an odd on (Mayer, 2009).
- Furthermore it is recommended any responses (correct or incorrect) to questions are immediately followed by explanatory feedback
- Full training should be provided how a student can navigate throughout the video. This training becomes more relevant for the novice learner (Gajos *et al.*, 2014).

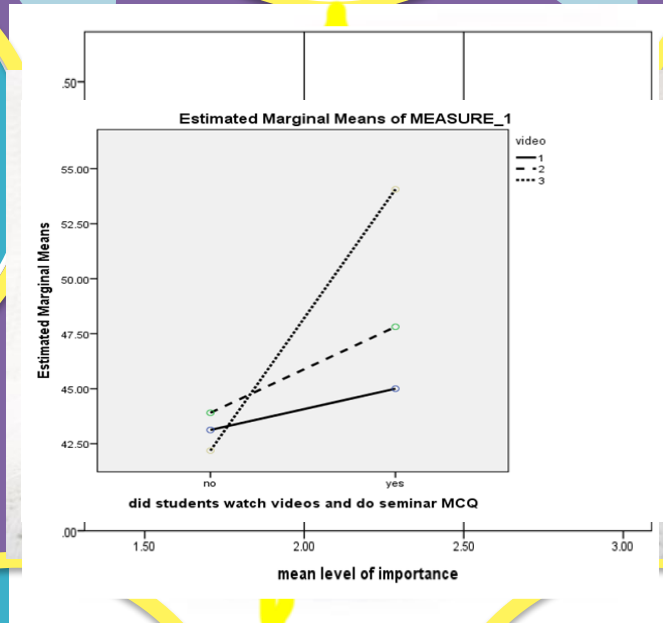
Plan
(panic)

Try again

Learn

iNquire
(Research)

Attempt



Further Research

- Will future research provides similar results for different levels of study (level 4, 5, 6 and 7)?
- Is there a short term and a long term impact of embedded quiz questions within a video?
- Can embedded quiz questions support students to go beyond recalling facts to evaluate and synthesise questions?
- Is there an optimum number of questions to be asked in a video?

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Thank you for listening.

Any Questions?

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