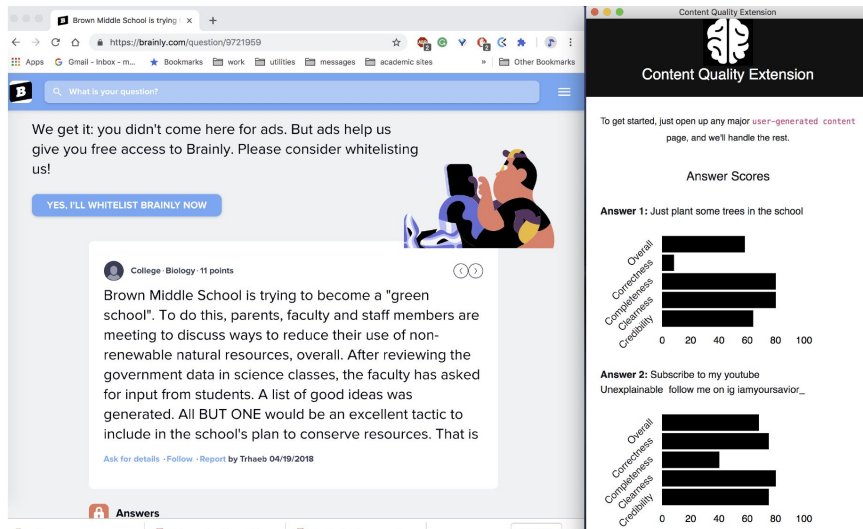


UGCQ-Checker [Doctoral Research]

UGCQ-Checker, a browser-based extension which assists users in evaluating the quality content (i.e. displaying scores) in question-answering sites for young learners

Watch the video:

https://www.youtube.com/watch?v=r1s5clqtyMo&ab_channel=ManasaRath



The screenshot displays a web browser window with a Brainly question and the UGCQ-Checker extension interface. The browser window shows a question about a school's plan to become a "green school" and a button to "YES, I'LL WHITELIST BRAINLY NOW". The extension interface, titled "Content Quality Extension", shows "Answer Scores" for two answers. Answer 1 is "Just plant some trees in the school" and Answer 2 is "Subscribe to my youtube follow me on ig iamyoursavior_". The extension displays scores for Overall, Correctness, Completeness, and Credibility for each answer.

Answer	Overall	Correctness	Completeness	Credibility
Answer 1: Just plant some trees in the school	60	10	80	60
Answer 2: Subscribe to my youtube follow me on ig iamyoursavior_	60	40	80	60

Role	Team	Duration	Skills and Tools
As a doctoral research, I built end to end processes of architecting software building, conducted usability testing studies to gain insights into how users make use of the browser-based extension (MVP) as a part of a federal grant	Project lead, collaborated with software engineers, supervisor	June, 2018 - June, 2020	Tools: R, Python, HTML, CSS, JavaScript, PHP, xampp, MS Office Skills: Usability testing, Design thinking, Data Analysis, Front-end coding Contextual Inquiry, Interviews

Problem:

- Users (K-12 students) make use of content on educational question-answering (Q&A) for course requirements
- No full-proof way to conceptualize the quality of content independent of consumers task at hand

Research Questions

RQ1: What were users' perceptions regarding the presence of automated quality scores while completing the task?

RQ2: How does users' engagement vary with the change in task type (such as ranking, synthesis) in the presence or absence of automated quality scores?

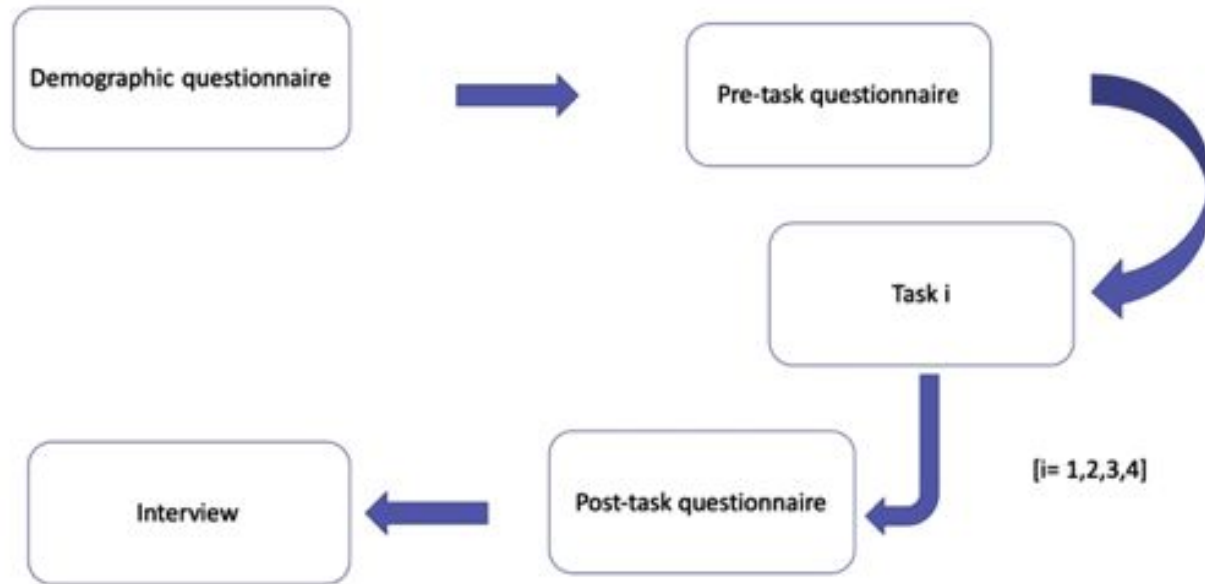
Process

- To build the plugin, I collaborated with software engineers and my supervisor to ideate the concept and operationalize the idea
- Several prototypes were built to ideate and later engineered to build the extension
- After the extension was built, a control user-study was built to study users' perception of it while using it
- **A/B testing was performed** to understand to what extent users made use of the browser based extension
- A web-registration system was created consisting of pre-task/tasks/ post-task questionnaires to under the process
- To understand users' engagement with the quality scores, an eye-tracker was employed to record users' gazes

Process

- While carrying out the lab-studies, three group of participants were considered: Control, Treatment 1 & Treatment 2
 - Control condition: Participants were not shown the quality scores while performing the tasks
 - Treatment condition 1: Participants were shown scores while performing tasks
 - Treatment condition 2: Participants were shown manipulated scores while performing the tasks
- 15 Undergraduate students from Rutgers University were considered for the lab study
- After the users completed the tests, a semi-structured interview was conducted

Study Design



Study materials included in the experiments

Study interface : ranking & synthesis tasks

Question 1: When did recycling become popular?

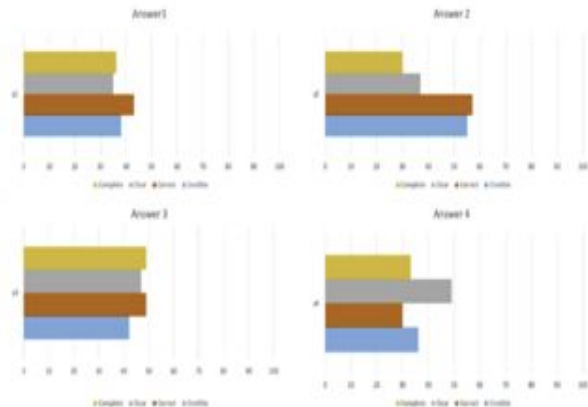
R1: In the '70s when energy costs were quickly rising, it only takes about 1/2 of the energy to recycle a aluminum can than to make a new one. SOURCE OF LINES 1

R2: Some countries have recycle and reuse for more often and a much longer time. The three-way rotation of the last food nation has resulted in much trash and waste. In the late 90's municipalities were making it a requirement, while one truck company in the area was putting up obstacles like requiring the removal of labels from glass which caused quite an uproar. SOURCE OF LINES 2

R3: When they paid for cans and bottles. SOURCE OF LINES 3

R4: I think it's always been popular out of necessity to reuse and recycle. Especially during the depression. It's only recently we have become a disposable society. SOURCE OF LINES 4

Submit Order



Question 2: Why did dinosaurs become extinct? A consensus of scientific opinion says it was because of a meteorite impact 65 million years ago. Seems to me SOME would have survived.

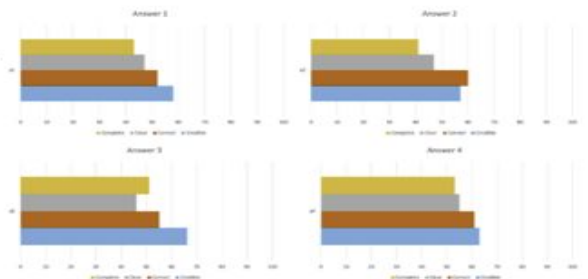
Answer 1: Some did. 65 million years is a long time to evolve into the lizards and birds we see today.

Answer 2: Because Ichthyosaurus (dinosaurs as a word was coined in 1849) are mentioned in the Bible it could also be they died in the Noahian Flood.

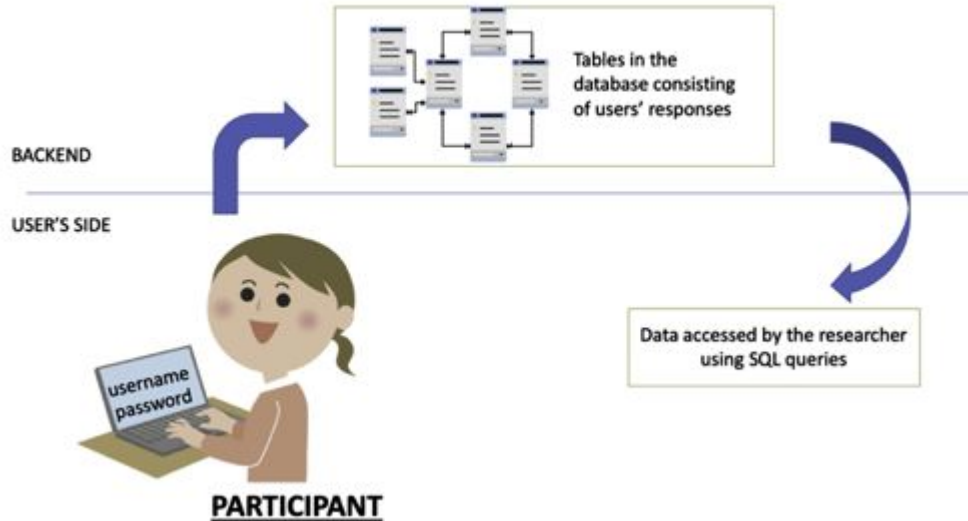
Answer 3: Surely they did? There are lots of animals around today which are descendants from dinosaurs, birds, lizards etc.

Answer 4: The nature is considered to be from the oldest living line of dinosaurs.

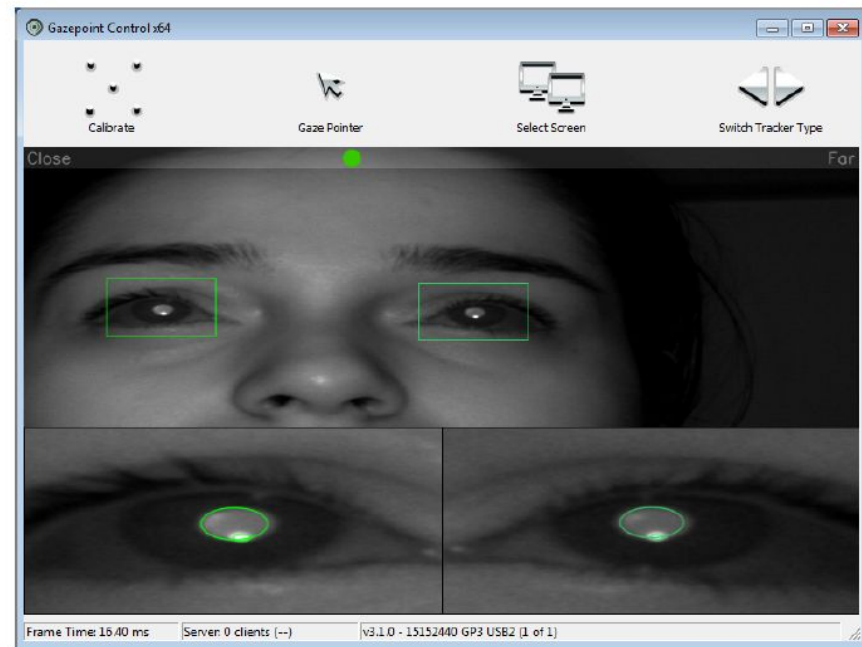
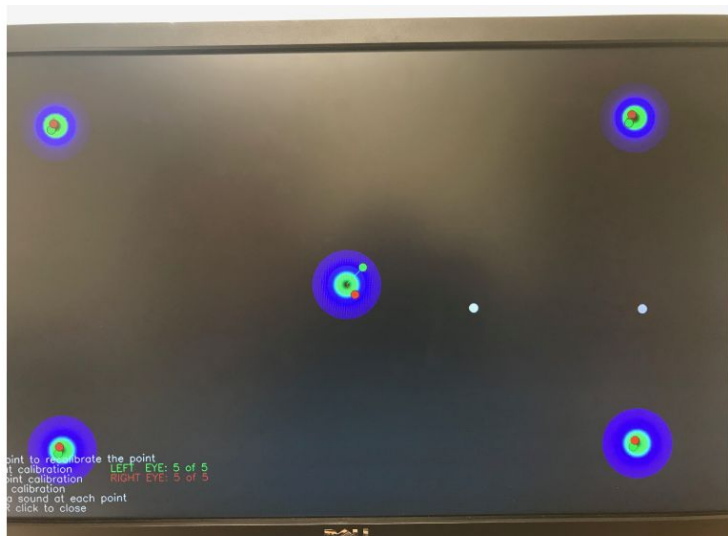
Submit



Specifics of a web-registration



Eye-tracker: Calibration



The eye-tracker was calibrated and pilot tests were conducted before performing the actual study

Task 3

Question 3: What does the name "Orangutan" mean?

For Orangutan to follow me for "son of the forest" (10,000 XP (1,000 %))

If I (Orangutan) is originated from the Malay-Indonesian language which mean "son of the forest" (They mean "pugil or person" while I that accurately "Pugil" mean "pugil or bear" (10,000 XP (1,000 %))

For (Orangutan) "Son of the Forest" which mean a forest figure, which according to an exchange, is old and historical language (son and forest) (10,000 XP (1,000 %))

For (Orangutan) meaning "Pugil" (10,000 XP (1,000 %))

Submit Answer

The diagram illustrates a sequence of four bar charts, each representing a different interpretation of the word 'Orangutan'. The charts are arranged in a 2x2 grid. The top-left chart is labeled 'Answer 1' and has a path starting from it. The top-right chart is labeled 'Answer 2' and has a path starting from it. The bottom-left chart is labeled 'Answer 3' and has a path starting from it. The bottom-right chart is labeled 'Answer 4' and has a path starting from it. The path connects the top-left chart to the top-right chart, then to the bottom-left chart, and finally to the bottom-right chart. Each chart has four horizontal bars of different colors (yellow, grey, brown, blue) and a vertical axis labeled '0' and '100'.

Analysis

- Statistical analysis was conducted to observe differences in users' behavior while completing the tasks
- Interviews were **transcribed and coded under relevant themes** to further understand users' perceptions on the use of quality scores in presence of quality scores

Findings

- Users only used quality scores when unfamiliar with the topic
 - *“I took help of the charts when I wasn’t knowledgeable about the topic”*
- No differences found between difference in task type and users use of quality scores
- Genuine/Manipulated treated quality scores as real: Placebo effect
- Users primarily used: correct, credible
 - *“I used credibility and correctness as the criterions, also went through all the answers along with the questions to give in more context.”*

Limitations

- Eye-tracking did not provide insights on users' intention on looking a particular point on the screen
- Higher sample size would have provided more insights between users' use of quality score
- Conducting a lab session along with a naturalistic study could have provided more context on users' use of quality scores