What is the best way to spend your study break? The effect of awake quiescence and watching an entertaining video on insight measured by the NRT test.

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June 2024

Abstract

The insight moment is defined as a moment in which a non-obvious solution to a problem comes to an individual in a sudden, unexpected way accompanied by a pleasant, confident phenomenology. Such insight moments lay an important role in problem-solving in different fields, from laboratory experiments to groundbreaking scientific research. In the development of students who can come up with novel and accurate solutions, schools benefit from creating an environment in which students can elicit these insight moments. To better understand what situations, lead to insight, the role of engaging in awake quiescence compared to watching an entertaining video during a break between problem-solving bouts was investigated. In this experiment, the NRT task was used to measure insight. Only one (out of 26) person managed to achieve insight during this study and thus no conclusion could be made regarding the research question of this thesis. There were no differences in time and accuracy between the two groups. This result highlights the importance of understanding the subtle factors, such as the interface and instructions given in the experiment, that can influence insight and the NRT test used to measure this insight.

Introduction

It is a familiar tale in which a scientist, artist or philosopher is not actively working on a problem when, seemingly out of nowhere, they are struck by a revelation that will revolutionize their respective field. Examples of such stories are Newton's theory of gravity (Stukeley, 1936), Andrew Wiles's solution to Fermat's theorem (Laukkanen et al., 2023), and Darwin's evolutionary theory (Darwin & Barlow, 1993). This pattern is possibly best illustrated by the myth of Archimedes, who supposedly ran naked through the streets of Syracuse screaming "Eureka" (I have found it) after having found the solution to the problem of measuring the volume of irregular objects, while bathing. It is interesting to note how often this pattern has repeated itself across time and different disciplines, it is also intriguing to note how we all can relate when we hear how Archimedes felt after having found the solution to his problem. Could this well-documented Eureka moment be more than just an interesting anecdote about famous scientific discoveries, could it perhaps tell us something about how humans come up with creative, unexpected ideas?

Psychologists have been researching this question consistently for over a century now (Hart, 1908; Ellis, 1963; Laukkonen et al., 2023; Metcalfe, 1986). In the literature on insight, the Eureka-moment is referred to as 'insight', defined as "any sudden comprehension, realization, or problem solution that involves a reorganization of the elements of a person's mental representation of a situation to yield a nonobvious or nondominant interpretation" (Kounios & Beeman, 2014, p.1). Several important characteristics of insight have been reported in this century of research on insight moments.

First, insight is accompanied by a distinct phenomenological experience, an Aha! moment: the idea captures attention at the cost of other streams of consciousness, the idea feels certain (increased confidence), is surprising, causes a desire to act, and feels pleasant (Laukkonen et al., 2023). The intensity of an Aha! moment is well described by the mathematician Andrew Wiles who is fighting tears while he explains the feeling he had when finding the solution to Fermat's theorem: "At the beginning of September I was sitting here at this desk when suddenly, totally unexpectedly, I had this incredible revelation. It was the most important moment of my working life. Nothing I ever do again will. I'm sorry." (Laukkonen et al., 2023, p. 8). Insight solutions are also better remembered than non-insight solutions, potentially because of this distinct phenomenology, similar to flash-bulb memories (Tulver et al., 2023).

Secondly, insight experiences are not exclusively reserved to groundbreaking discoveries. Instead, insight moments also occur in solving regular every-day problems as well as in other domains such as meditation, psychotherapy and psychedelic experiences (Tulver et al., 2023). According to Sprugnoli et al. (2017), insight moments are a general conscious process that is involved in different domains including perception, decision-making and language comprehension (the sudden understanding of a joke for example) as opposed to only occurring during groundbreaking discoveries. Eureka moments are thus unique in how strongly they are felt and the disruptiveness of the idea but not because of its fundamental processes. This idea is also supported by the fact that most people can relate to the groundbreaking revelations mentioned in the first paragraph, even when they themselves have not had a breakthrough of a similar magnitude (Ovington et al., 2015).

Finally, solutions to a wide range of different problems are more accurate when they are accompanied by insight phenomenology compared to when such phenomenology is not present (Salvi et al., 2016). This can be explained by the idea that insight phenomenology is a heuristic that is used to judge the accuracy of an idea. That is, the presence of such insight phenomenology can be seen as a signal that the accompanying idea is 'accurate' (Laukkonen et al., 2023). Characteristic for insight solutions is that they come to one's consciousness seemingly out of nowhere, meaning that there are no conscious steps that precede the solution. Because the steps that were followed to reach this idea are hidden, a problem arises: how do we judge whether this idea is accurate? This is why it is thought that the specific insight phenomenology is used as a way of verifying whether this idea is accurate and thus useful. However, just like all other heuristics, this heuristic can be led astray. For example, research by Dougal and Schooler (2007) shows that when arbitrary sentences such as 'free will exists' are presented while at the same time eliciting an insight experience by having the participants solve an anagram, a tool often used to elicit insight experiences, these sentences are more likely to be judged as accurate by participants than when these same sentences are presented without eliciting an insight experience.

To conclude, the ability to restructure mental elements to reach a non-dominant solution is an important skill in solving problems, from elementary problems in laboratory studies to problems that scientists are facing such as coming up with new theories. Insight solutions are better remembered and more accurate than non-insight solutions as well as leading to more non-obvious solutions than analytical forms of problem-solving.   Given the role insight plays in different forms of problem solving, it is important to understand what conditions lead to insights and how one can elicit insights reliably.

Insight research has also shown conditions in which insights are more likely to occur. Anecdotally, there seem to be several different situations that are especially well-suited for insights to occur: showering, being in transport, or right before and after falling asleep (Gable et al., 2019; Ovington et al., 2015). One reason why these situations seem to be particularly well-suited to elicit insight is that all these situations enable incubation, a stage in problem-solving where attention is diverted from the problem the individual is trying to solve (Gable et al., 2019; Bowden, 1997). Indeed, research shows that people are more likely to solve insight problems if they disengage with the problem they are working on and spend time working on something else (Sio & Ormerod, 2009). Furthermore, an experiment by Craig et al. (2018) shows that participating in awake quiescence (quiet rest spent in a dimly lit room with reduced sensory stimulation) during a break in between tasks leads to higher levels of insight using the NRT test, a test commonly used to measure insight (Thurstone & Thurstone, 1941), in comparison to an active but undemanding exercise (a find the differences game). In addition, insight experiences are preceded by a higher blink rate and 'looking at nothing behaviours' which are associated with an incubation period in which implicit processing is thought to occur (Laukkonen et al., 2023). More specifically, it is the restructuring of knowledge that this period of incubation offers, that leads to this beneficial effect as opposed to merely the shift in attention or a decrease in cognitive fatigue (Craig et al., 2018).

Following these results, the question remains: what is the mechanism through which incubation leads to insight? One explanation comes from research into why certain sleep stages, especially the N1 stage (the first stage of non-REM sleep), seem to promote insight (Lacaux et al., 2021; Wagner et al., 2004). The N1 stage of sleep, present when one is falling asleep and periods of quiet rest with sensory deprivation, seems to provide a cocktail of neurocognitive effects that can explain the increased ability for insight that is reported (Lacaux et al., 2021). First, activity in the default mode network increases during this stage, the default mode network is a set of brain regions that is related to internal attention (such as autobiographical memory, self-referential processing, imagination and future planning) and is inversely related to goal-directed behaviour (Picchioni et al., 2008). Second, during this stage of sleep, several forms of restructuring and connecting of recent and distant memories occur. For example, memories relate to present stimuli which could lead to the development of novel, creative connections that are required for insight (Stenstrom et al., 2012). Next to this, during N1, spontaneous offline replay of neural activity of recently encoded memories occurs (Craig et al., 2018). Through the offline replay of this neural activity, memories are established as well as reorganized in novel ways, which is important for the emergence of insight. During different sleep stages, redundant synaptic connections are removed to minimize complexity, this is another memory-processing effect that can lead to increased insight since one is less bound by redundant connections (Friston et al., 2017). Lastly, it takes several minutes after thalamic deactivation before the cortex deactivates (Magnin et al., 2010), this is crucial because it shows that there is a period in which there is increased mind-wandering, novel connections between memories while still maintaining executive function to evaluate the ideas that come up. It is thought that during periods of incubation, these same effects of N1 are present, explaining why distinct activities such as sleep, showering and being in public transport all seem to increase insightfulness (Friston et al., 2017; Lacaux et al., 2021).

Given the earlier-mentioned findings showing the importance of incubation for creating situations in which insight is elicited (Craig et al., 2018; Sio & Ormerod, 2009), the question arises whether environments in which insight plays a crucial role, are designed in such a way that there is time and space for incubation. One of these environments is educational environments. Schools aim to educate their students to become creative problem solvers who are able to come up with novel, meaningful and accurate solutions to the problems that the next generation faces. The ability to come up with such novel, accurate and meaningful solutions is dependent on having moments in which incubation can take place. It is thus crucial to understand to what extent situations in which incubation takes place is present in schools.

One of these moments in which incubation can take place is the time spent in between study bouts. With the rise of technologies present in schools, such as computers, tablets and social media (Dontre, 2020), the question arises whether engaging with such technologies in between study bouts influences students' insight after this break. More specifically, a survey by Dienlin and Johannes (2020) shows that YouTube is the most frequently used digital service among teenagers. It is plausible that watching a YouTube video during breaks could lead to less opportunity for incubation as one of the conditions for incubation is minimal sensory input (Lacaux et al., 2021) whereas watching a YouTube video is a source of sensory input. A literature search however showed that, to our knowledge, no experiment has been performed examining whether a period of awake quiescence is more beneficial than watching a YouTube video during a break for eliciting insight after said break. Such an experiment is important since the comparison between awake quiescence and watching a YouTube video is a realistic proxy for how students spend their time in between bouts of work (Dienlin & Johannes, 2020). Thus, research comparing the effects of engaging in awake quiescence to watching a YouTube during a break between problem-solving bouts would provide relevant and important findings about how the way students are spending their break impacts insight ability.

This leads us to the research question of this thesis: what is the effect of 10-minutes of awake quiescence versus 10 minutes of watching an entertainment video (YouTube) in between problem-solving bouts on levels of insight measured using the NRT test in university students? The participants will be split in two groups: the first group (the YouTube group) will watch a 10-minute YouTube video and the second group (the awake quiescence group) will engage in 10 minutes of awake quiescence during the break.

Methods

Participants

In total, 28 university students participated in this study (15M, 13F, mean age = 21.85). The participants were randomly assigned to one of two groups, the awake quiescence group and the YouTube group, both consisting of 14 people. The gender ratio of the two groups was evenly split: awake quiescence group (8M, 6F) and YouTube group (7M, 7F). There was a small difference between the average age of the two groups (22.57 for the awake quiescence group and 21.14 for the YouTube group). In total, seven people were recruited, through volunteer sampling, using an online system where university students can sign up to participate in experiments in return for credits, the other twenty-one participants were recruited through opportunity sampling, by being asked to participate in this study by the researcher. Two participants in the awake quiescence had to be removed since part of their data was lost due to technical problems. All participants were students at a university in the Netherlands but in different study programs. All participants signed the consent form and agreed to participate in the study.

Materials

NRT puzzle

The NRT puzzle (Thurstone & Thurstone, 1941) has been used to measure insight in several different studies investigating the effect of incubation such as studies on different sleep stages and awake quiescence (Craig et al., 2018; Lacaux et al., 2021; Wagner et al., 2004). In this puzzle, participants were given a string of 8 digits consisting of the numbers 4,1 and 9 in different orders. Examples could thus be 44119414, 41994119, 11149444 etc. The participants had to manipulate this string of numbers using two rules to create their own string of 7 numbers. First, one compares the first and second digit of the given string. There are two options: either this number is the same, 4 and 4 or 9 and 9 or 1 and 1, in this case rule number one is used: one writes down this same number as the first number of the new string created by the participant. So, if the given string is 44199444, the first number of the new string would be 4. However, if these two numbers differ, for example 1 and 9, then one writes down the third number out of 4,1 and 9 that is not in the two digits that are being compared. So, if the given string is 19491194, then the first digit of the new string is 4. Then the participant would compare the first number of their own string to the third number of the given string to obtain the second number of their string, then compare their second number with the fourth number of the given string etc. until the participant had obtained their own string of 7 numbers. The goal for the participants was to determine the solution digit: the 7th digit of the string of numbers they made. What the participants did not know was that there was also a hidden rule, namely: the second digit of the solution string was always the same as the 7th digit (solution digit). If the participants managed to find the hidden rule, they could solve the NRT puzzle faster.

Interface

This interface in which the NRT puzzles were solved was programmed using the program PsychoPy, see Appendix A for the user interface that was used as well as the list of NRT puzzles. The computer interface consisted of a given string of 8 numbers, a space below that in which the participants could type, and lastly, three buttons 1,4 and 9 by which they could select their solution digit. For all NRT problems, there was a time limit of 60 seconds after which the screen jumped to the next question.

Room

In the room in which the participants performed the experiment, the windows were blocked, and the lights were off to ensure that the participants would have minimal sensory input when engaging in awake quiescence. To ensure a minimal amount of difference between the two groups, the same conditions (blocked windows and lights off) were held for both groups. The awake quiescence group was resting in a gaming chair which was slightly leaned back to ensure minimal differences between the conditions.

Videos

In Appendix B, the links to the three YouTube videos used for the YouTube group can be found. These YouTube videos were approximately the same length and about topics that were similar in emotional engagement (meaning no sensitive topics, or highly emotional depictions in the video) but still varied enough that the participants could choose a video that was interesting enough for them to watch and not get bored (a football highlight, dessert recipe, and a vlog). This was done so that there was similar engagement levels between participants, whereas one single video might bore one person while the other might be very interested in this specific topic. It is important that the engagement levels of the different videos were alike to avoid confounding effects that could influence the research question.

Procedure

The experiment was done one participant at a time, the participants took part in the experiment during the month of April. When entering the room, participants were first asked to read a rough description of the experiment and agreed to a consent form. After this, the researcher demonstrated an example of the NRT puzzle using pen and paper to make sure that the participants understood the puzzle. The participants were told that they had to determine the solution digit: the 7th digit of the string of numbers they made and that this could be done at any time. Once these rules were explained, participants were asked if the rules were clear to them and in case it was not, additional examples were given until the puzzle was clear to the participant. It is important to stress that in this phase, all examples used did not contain the hidden rule, so no learning was present in this phase. Once participants verbally agreed that they understood the rule, they were asked to make 5 test questions on the computer (which also did not contain the hidden rule) to ensure the rules were clearly understood and there were no ambiguities about the interface. The researcher watched the participants do this to make sure the puzzles and interface were understood by the participant by asking for verbal agreement.

Once this was all checked, the participant started with the pre-break phase consisting of 60 NRT problems that all contained the hidden rule. Both groups were told before starting their break that they were done with these puzzles to minimize the chance that they would be consciously thinking about the puzzles during the break. After this, participants were randomly assigned to the ‘awake quiescence group’ or the ‘YouTube group’. The awake quiescence group was told by the researcher that the second part of the experiment would be set up and that this would take 10 minutes, in the meantime they were asked to sit in a chair that was leaned back and not use their phone or any other distracting devices till the researcher came back, the researcher left the room for these ten minutes. The YouTube group was asked to watch one of three YouTube videos on the laptop provided by the researcher, these videos were already set up beforehand, so no time was lost finding the YouTube videos. During the post-break phase, participants were asked to continue with the NRT puzzles according to the same rule, this phase consisted of 100 NRT problems. After these 100 problems, the experiment was completed. Next, the participants received a short debriefing in which they could ask questions about the experiment and retract their consent to participate in this experiment if they wanted to (no one did). In this debriefing, it was also asked to participants whether they found the hidden rule during the experiment.

After the experiment was completed, the analysis was performed by the researcher who checked whether participants typed in all digits to come to the solution or whether they typed only two digits in the answer field as a proxy for finding the hidden rule. The procedure used in this study was modelled after the study by Craig et al. (2018) the main difference being that in this study, one group was watching a YouTube video whereas in the study by Craig et al. (2018), this group was engaging in a ‘find the differences’ game.

Results

Only one person in the YouTube group was able to find the hidden rule, whereas zero people found this rule in the awake quiescence group. In Table 1, all descriptive statistics are shown including accuracy and speed in both the pre-break phase and the post-break phase. Accuracy was calculated by dividing the amount of correctly answered NRT problems by the total amount of NRT problems (in the specific phase). The speed was calculated as the average amount of seconds it took to solve a NRT problem.

Table 1

Descriptive statistics

	Awake quiescence group (N = 12)	YouTube group (N = 14)
Participants who found the hidden rule (N)	0	1
Speed pre-break (seconds per NRT puzzle) (M/SD)	17.2 (*SD*=3.3)	17.3 (*SD*=3.2)
Average accuracy pre-break (%)	93.5%	94.5%
Speed post-break (seconds per NRT puzzle) (M/SD)	20.9 (*SD= 5.43*)	20.8 *(SD*=5.52*)*
Average accuracy post-break (%)	95.1%	97%

NRT pre-break phase

During the pre-break phase, zero people found the hidden rule in the awake quiescence group and one person found the hidden rule in YouTube group . During the pre-break phase there was no significant (p=0.05) difference in the number of errors between the awake quiescence group (M=3.9, SD=2.3) and the YouTube group (M=3.3, SD= 1.6), $t(24)$ =0.79, p=0.43. Also, no significant difference was found in speed between the awake quiescence group (*M*=17.3, *SD*=3.2) and the YouTube group (*M*=17.3, *SD*=3.3), $t(23) = -0.03$, $p=0.98$.

NRT post-break phase

During the post-break phase, no additional participants found the hidden rule. The values for accuracy (Shapiro-Wilk test with a p-value of 0.003) and speed (Shapiro-Wilk test with a p-value of 0.0016) in the post-break phase were not normally distributed, thus a Mann Whitney U test was used to compare these values between the YouTube and awake quiescence groups. Again, no significant differences were observed in both accuracy, $U=111$, $p=0.17$, and speed $U=89$, $p=0.82$.

Discussion

Returning to the research question of this thesis, what is the effect of a 10-minute period of awake quiescence versus a 10-minute period of watching an entertainment video (YouTube) on levels of insight measured using the NRT test? The results of this study do not give a conclusive answer to this question since only one person reached (i.e., was able to find the hidden rule). Meanwhile, the results show that there was no difference in accuracy and speed between the two groups. The results can thus not give a conclusion to whether engaging in awake quiescence during a break in comparison to watching an entertaining video led to more insight.

The results of this study show that only one person in the YouTube group and zero people in the awake quiescence group were able to find the hidden rule (3.8% of total participants). This is in sharp contrast with similar studies that used the NRT test to measure insight (Craig et al., 2018; Lacaux et al., 2021).In the study by Craig et al. (2018), after which the design of this experiment was modeled, 12.06% (7 out of 58 participants) found the hidden rule during the pre-break phase (60 NRT trials) whereas 62.50% (15 out of 24 participants) in the group who participated in awake quiescence during the 10-minute break found the hidden rule in the post-break phase (300 trials) and 25.93% (7 out of 27 participants) of the group who participated in a ‘find the differences’ game found the hidden rule during the post-break phase.

In the study by Lacaux et al. (2021) in which a similar study design was used, 83.33% (20 out of 24 participants) of the participants who reached the N1 sleep stage during a 10-minute break, found the hidden rule during the post-break phase.30.6% (15 out of 49 participants) Of the participants that were awake during the break found the rule during the post-break phase. Lastly, 14.29% (2 out of 14 participants) of the participants who reached the sleep stage N2 (a sleep stage deeper than N1) found the rule during the post-break phase, whereas 15.50% (16 out of 103 participants) found the hidden rule during the pre-break phase (60 NRT trials). Meanwhile, just as in the current study, there was no difference in speed or accuracy between the groups in the studies by Lacaux et al. (2021) and Craig et al. (2018). The question arises, what can explain the difference in measured insight between the current study and these other studies that are very similar in their experimental designs.

A first potential answer could come from the difference in the amount of NRT problems given in the post-break phase of the different studies. In the study by Lacaux et al. (2021), the post-break phase consisted of 270 NRT problems and in the study by Craig et al. (2018) the testing consisted of 300 NRT problems whereas in the current study, this phase only consisted of 100 NRT problems. However, in the study by Lacaux et al. (2018), the average insight moment was at 94 NRT problems whereas in the study by Craig et al. (2018), the average insight moment was at 77 NRT problems (SD=1.90 and SD=1.45 for the respective groups). The length of the post-break phase can account for a part of the observed difference since, given the mean and standard deviation, some participants of the studies by Craig et al. (2018) and Lacaux et al. (2018) found the rule after 100 NRT problems. However, most participants in these studies found the hidden rule within the 100 NRT problems and this could thus not explain the complete difference between this study and the other two studies.

Furthermore, this also cannot explain the observed difference during the pre-break phase that consisted of the same number of trials in all three studies (60 NRT problems) whereas the percentage of people who found the hidden rule differs between the studies, 15.50% and 12.06% and in this study only 3.8%. A lower sample size (26 participants) compared to the other two studies (103 and 58 participants) is a potential factor in having a lower percentage of people who found the rule since a single person finding the rule increases the percentage with 3.8%, and thus only two more people finding the hidden would have led to the percentage of 11.5% which is in line with the percentages found in the other studies. The participants in the three studies are similar in age, gender and educational level, there is thus no reason to believe that this could be a contributing factor to the observed difference in results.

Additionally, differences in study design are another explanation for the observed difference in insight between the studies. The two studies used blocks of 30 trials with a ten-second break in between these blocks, during both the training and post-break phase (Craig et al., 2018; Lacaux et al., 2021). It is not made clear in these studies why this was done compared to presenting the NRT problems continuously, but in the current study, the problems were presented fashion continuously to simplify the program used to present the NRT problems. It could potentially be that these ten seconds-second breaks impact the memory consolidation process that plays a crucial role in insight (Friston et al., 2017; Stenstrom et al., 2012). Future studies should investigate whether these breaks between NRT puzzles do indeed affect memory consolidation and thus insight. A second difference in the study design was the interface that was used to present the NRT problems. The interfaces used in the other two studies were not publicly available so it was not possible to directly compare but it can be assumed that the user interface of this study (see Appendix A) differed slightly from the other two. The interface could have influenced the result of the NRT test in that in this test, the connection between the second number and the final answer is what is the basis of finding the hidden rule. If there is thus a difference in the interface between how easy this connection is made, this can influence the amount of people who find the hidden rule. If it indeed turns out that the interface is a factor contributing to the observed difference, then it is an important finding showing the need for a standardized interface for the NRT test such that different studies can be compared to each other.

Additionally, the exact instructions that were given before the start of the experiment is an additional candidate for explaining the low number of participants who found the hidden rule. The instructions were also modelled as closely as possible, with the given information, after the study by Craig et al. (2018). However, again this information was not fully available, and it is thus likely that differences existed in the instructions. Even though the instructions were modelled, as much as possible given the information provided in the methods sections, after the studies by Craig et al. (2018) and Lacaux et al. (2021), there could have been slightly different causing the participants to understand the goal of the experiment in different ways than the participants in the other studies, and thus impacting their ability to find the hidden rule. Participants could for example have picked up more or less than in these other two studies that a hidden rule was presented through subtle differences in words.

There are thus several potential answers explaining why a low percentage of the participants found the hidden rule: the limited amount of NRT problems used in the post-break phase, limited number of participants as well as differences in study design (instructions, interface and breaks between blocks of NRT problems). The results of this study highlight the need for future studies to investigate to what extent results of the NRT are influenced by factors such as the interface, breaks between blocks of NRT problems, and the explanations that are given to the participants before the experiment. The results of this study suggest that the ability of the NRT to measure insight is fragile and is influenced by the abovementioned factors.

This aligns with research showing that 'insight tests' are fragile in capturing the insight moment and that differences in research design can impact whether participants are able to reach an insight (Tulver et al., 2023). Given that insight ability is dependent on unconscious processes such as the restructuring of mental information (Gilhooly, 2019), relatively subtle factors that could disturb these processes could influence the insight process. The results of this study specifically stress the need to further research the subtle ways in which the NRT test measures insight and which factors influence this. More specifically, these results show there is a need to research whether different instructions and interfaces influence the ability of the participants to find the hidden rule and work towards a universal interface that can be used for the NRT puzzles. Secondly, the results of this study show the importance of investigating the effect of doing the NRT puzzles continuously in comparison to having a ten-second break in between blocks of 30 NRT puzzles. Gaining a better understanding of the NRT test helps future research in investigating the role of what students do in a break between periods of studying on insight after this break. Such research could then be applied by schools and teachers to design learning environments that promote moments of insight in students.

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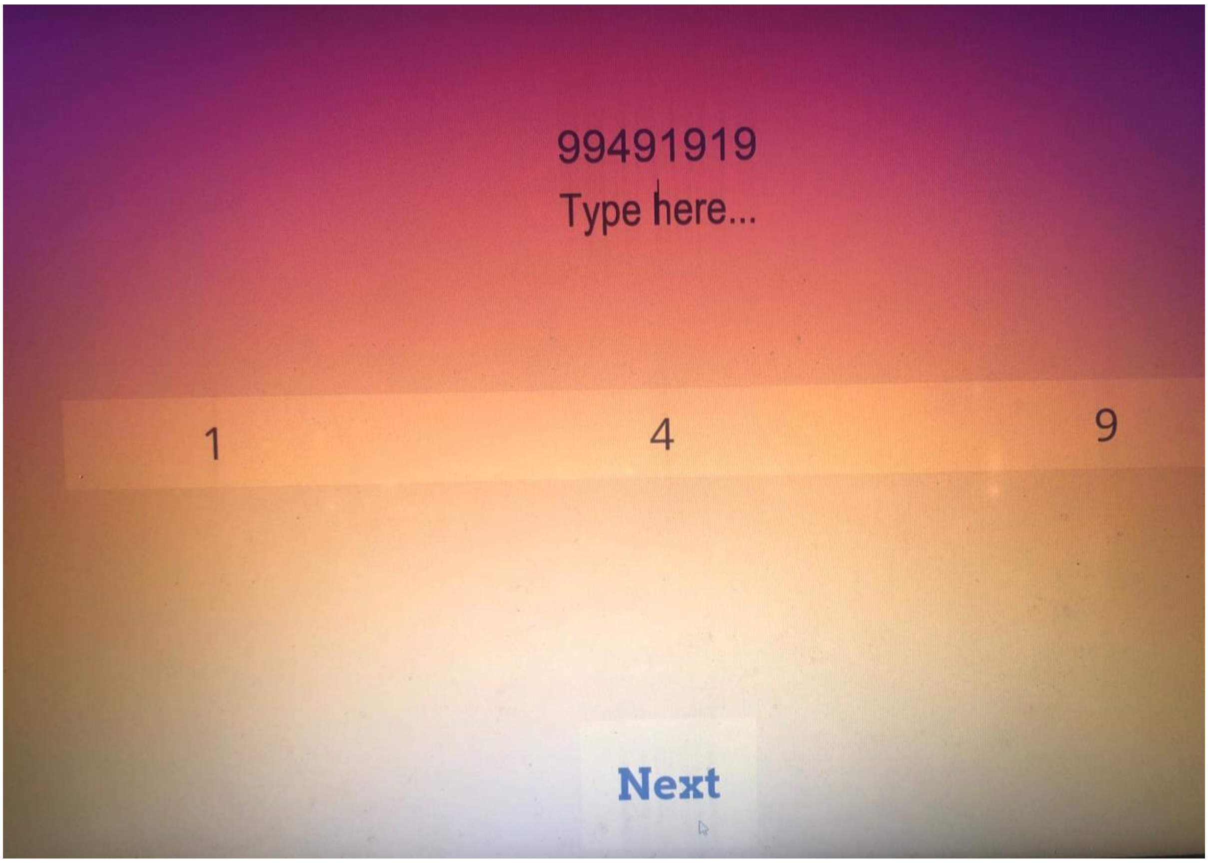
Appendix A



Interface of the PsychoPy program used in the experiment

Appendix B

YouTube video 1: https://www.youtube.com/watch?v=PjhX22BWET8

YouTube video 2:

https://www.youtube.com/watch?v=BaFK17OyXSk&list=PLyg91lY5j03Ictv0l_i8_1AGmog3J

lWi5&index=62

YouTube video 3:

https://www.youtube.com/watch?v=Q9lZHxhVzfM&list=PLVgalrldhBtbtVxZqLKmq30CkISP

R0MLH&index=67