Appendix A



**To Take a Break or Not to Take a Break: The Impact of Incubation on Creative Performance**

You are invited to participate in a research project entitled “To Take a Break or Not to Take a Break: The Impact of Incubation on Creative Performance”. Please read this form carefully, and feel free to ask any questions.

**Researchers:** Phaedra Berger and Rebecca Antosh (Undergraduate Students), Department of Psychology, pmb232@mail.usask.ca and rea306@mail.usask.ca

**Supervisor:** Dr. Valerie Thompson, Department of Psychology, 966-6668, valerie.thompson@usask.ca

**Purpose and Procedure:** The primary purpose of the research is to train the student researcher in the methods of behavioural research. This particular study investigates the effect of an incubation period on creativity. You will be asked to complete several demographic questions, followed by four test conditions. Each condition will contain two different creativity and reasoning tasks. At the end of the study, you will be given a sheet that better explains the nature of the study and you will be given a chance to ask any further questions that you might have. The study should take approximately 30 minutes of your time (1 credit).

**Potential Risks:** There are no known or anticipated risks to you by participating in this research**.**

**Confidentiality:** The data will be used for course work in an undergraduate psychology class, which may be published in a journal or presented at a conference. Your data will be kept completely confidential and no personally identifying information will be linked to your data. Data will be coded using arbitrary participant numbers that will not be associated with any names or personally identifying information. Consent forms will not be linked with the data. All data will be summarized in aggregate form.The data and consent forms will be stored securely at the University of Saskatchewan by the supervisor. Normally, the data will be destroyed once the course has been completed. In instances where the data is published in an academic journal and/or presented at a professional conference, the data will be stored for a minimum of five years after completion of the study**.**

**Right to Withdraw:** Your participation is voluntary and you are free to answer only those questions that you are comfortable with. You may withdraw from the research project for any reason, at any time without explanation or penalty of any sort, and without loss of research credit for the session. Should you wish to withdraw, any data that you have contributed will be destroyed beyond recovery. Your right to withdraw data from the study will apply until the data has been compiled and analyzed. After this, it is possible that some form of research dissemination will have already occurred and it may not be possible to withdraw your data.

**Questions or Concerns:** Feel free to ask questions at any point. You are also free to contact the researchers with the information provided at the top of this page if you have other questions. This research project has been approved on ethical grounds by the Department of Psychology Research Ethics Committee on              . Any questions regarding your rights as a participant may be addressed to the Behavioural Research Ethics board through the Research Ethics Office, ethics.office@usask.ca, (306) 966-2975. Out of town participants may call toll free, (866) 966-2975. The results of the study may be obtained by contacting the undergraduate researchers with the information provided at the top of this page.

**Consent:** Your signature below indicates that you have read and understand the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to participate in the research project. A copy of this Consent Form has been given to me for my records.

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Name of Participant                                                                Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_           \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of Participant                                                      Signature of Researcher

Appendix B

Sample Questionnaire

Demographics

Age: \_\_\_\_\_\_

Gender: \_\_\_\_\_\_\_\_\_\_\_

Divergent Creativity Task (Alternative Uses Task)

For this task, you will be asked to generate alternative uses for an everyday item. For example, while a normal use for a newspaper is to communicate information, it could be also be used as a paper hat. Please write down as many unique uses as you can think of for a brick. We will notify you when two minutes have past and the next task will be given to you. After switching to another task, you will return to this task for another two minutes.

Convergent Creativity Task (Remote Associates Test)

For this task, your goal is to find the one word that links the three given words together and write it beside the three words. For example, if you were given the words cracker/fly/fighter, the answer would be fire (firecracker, firefly, and firefighter). We will notify you when your two minutes are over and the next task will be given to you.

Sample: cream/skate/water

Non-Creative Task (Anagrams)

For this task, your goal is to unscramble the given letters to spell a word. Each letter may only be used once and each letter must be used. Please write the word beside the scrambled letters. We will notify you when your two minutes are over and the next task will be given to you.

Sample: hcmat

Conditions

1. Primary AUT → Incubation AUT → Primary AUT
2. Primary AUT → Incubation RATs → Primary AUT
3. Primary AUT → Incubation Anagrams → Primary AUT
4. Primary AUT → Primary AUT (no incubation) → Secondary AUT

Appendix C



**To Take a Break or Not to Take a Break: The Impact of Incubation on Creative Performance**

Thank you for your participation in this research study. Our study investigates the possible mechanisms behind incubation effects. Incubation effects are displayed when a creative task is worked on and then set aside for an incubation period. Creativity has been found to be higher on various tasks after an incubation period than after no incubation period (Gilhooly, Georgiou & Devery, 2013). However, it is uncertain which underlying cognitive processes are involved. There has been debate over whether incubation effects are due to unconscious work or beneficial forgetting (Gilhooly, Georgiou & Devery, 2013). The unconscious work theory suggests that one’s mind continues to work unconsciously on a problem while engaged in another task, while the beneficial forgetting theory suggest that the increase in creativity is due to reducing cognitive fixation. Our study aimed to examine these two theories and is based on previous studies.

Lu, Akinola and Mason (2017) conducted a study in which they found that task switching increased creativity on both divergent and convergent tasks. Convergent tasks are those that have one unique solution, such as the Remote Associates Test. For example, finding the word that links the following words together: cracker/fly/fighter; the word is fire. Divergent tasks, such as the Alternative Uses Task, have an infinite number of solutions. For example, generating alternative uses for a brick. Lu et al. reasoned that switching between tasks reduced cognitive fixation by withdrawing attention from ineffective or inefficient problem solving strategies. However, this study did not involve any conditions where participants switched between two different kinds of tasks, such as convergent and divergent, as opposed to two of the same type.

We hypothesize that if incubation effects are due to unconscious work, the condition with a convergent interpolated task should result in the highest creativity scores. However, if incubation effects are due to beneficial forgetting, there should be no significant difference between the convergent, divergent and non-creative interpolated activities on creativity scores.
 You might be wondering why much of this wasn’t explained to you at the beginning of the study. If we told you specifically what we expected to find, it may have changed the way that you completed the tasks, so we did not tell you all of the details of the study at the start. We also ask that you do not tell other students these details, because they may participate in this study as well.
 Once again, thank you very much for your participation. You have helped us further our understanding of the mechanisms behind incubation, and we hope that this study has also helped you understand a how the research process works. If you have any additional questions/concerns about your participation or would like to see the results of the study, you may contact one of the researchers at pmb232@mail.usask.ca or rea306@mail.usask.ca. Or, you may contact the supervisor of this study Dr. Valerie Thompson at valerie.thompson@usask.ca.

References:

Gilhooly, K. J., Georgiou, G., & Devery, U. (2013). Incubation and creativity: Do something different. *Thinking and Reasoning, 19*(2), 137-149. doi: 10.1080/13546783.2012.749812

Lu, J. G., Akinola, M., & Mason, M. F. (2017). “Switching on” creativity: Task switching can increase creativity by reducing cognitive fixation. *Organizational Behaviour and Human Decision Processes, 139*, 63-75. doi: 10.1016/j.obhdp.2017.01.005

Appendix D

SONA Study Information

Study Name: To Take a Break or Not to Take a Break: The Impact of Incubation on Creative Performance

Description: This study examines how creativity is affected by different incubation tasks. You will be asked to perform several creative and reasoning tasks. This study should take approximately 30 minutes of your time.

Duration: 30 minutes

Credits: 1 credit

Researchers: Phaedra Berger & Rebecca Antosh
 Email: pmb232@mail.usask.ca & rea306@mail.usask.ca

Appendix E

*Letter of Invitation to Participate*

**Project title: To Take a Break or Not to Take a Break: The Impact of Incubation on Creative Performance**

Dear Invitee,

 You are invited to participate in a study for a psychology undergraduate research project. The primary purpose of the research is to train the student researcher in the methods of behavioural research. The secondary purpose of the study is to examine the effects of interpolated tasks on creativity.

 For this experiment, you will be asked to complete a number of creativity and reasoning tasks. The study should take approximately 30 minutes of your time.

 Your data will be kept completely confidential and no personally identifying information will be linked to your data. Data will be coded using arbitrary participant numbers that will not be associated with any names or personally identifying information. Your participation in this project is voluntary and you are under no obligation to participate. You may withdraw from the study at any time without explanation or penalty of any sort.

 Additionally, there will be no compensation for participation in this project, however you will help us to develop our research skills and to gain a better understanding of this issue.

 If you are interested in participating in this research project or if you have any questions, comments, or concerns, please contact one of the student researchers or our supervisor.

Thank you for your time and we look forward to hearing from you!

**Sincerely,**

Phaedra Berger, Department of Psychology, pmb232@mail.usask.ca

Rebecca Antosh, Department of Psychology, rea306@mail.usask.ca

**Supervisor**:Professor Valerie Thompson, Department of Psychology, valerie.thompson@usask.ca, Telephone: 306-966-6668

Appendix F



**To Take a Break or Not to Take a Break: The Impact of Incubation on Creative Performance**

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**Supervisor:** Dr. Valerie Thompson, Department of Psychology, 966-6668, valerie.thompson@usask.ca

**Purpose and Procedure:** The primary purpose of the research is to train the student researchers in the methods of behavioural research. This particular study investigates the impact of interpolated tasks on creativity. You will be asked to complete several demographic questions, followed by four test conditions. In each condition, you will be asked to perform two different tasks. These tasks will be creativity and reasoning tasks and will differ in each of the four conditions. At the end of the study, you will be given a sheet that better explains the nature of the study and you will be given a chance to ask any further questions that you might have. The study should take approximately 30 minutes of your time.

**Potential Risks:** There are no known or anticipated risks to you by participating in this research**.**

**Confidentiality:** The data will be used for course work in an undergraduate psychology class, which may be published in a journal or presented at a conference. Your data will be kept completely confidential and no personally identifying information will be linked to your data. Data will be coded using arbitrary participant numbers that will not be associated with any names or personally identifying information. Consent forms will not be linked with the data. All data will be summarized in aggregate form.The data and consent forms will be stored securely at the University of Saskatchewan by the supervisor. Normally, the data will be destroyed once the course has been completed. In instances where the data is published in an academic journal and/or presented at a professional conference, the data will be stored for a minimum of five years after completion of the study**.**

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Name of Participant Date

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Signature of Participant Signature of Researcher