

Online Submission Coursework Cover Sheet
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Affective shifts and creativity in undergraduate students' coursework

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Abstract

The Phoenix model of creativity proposes that an affective shift, where negative affect (*NA*) decreases and positive affect (*PA*) increases, fosters creativity. This study tested the model in the context of undergraduate students' coursework, focusing on self-assessed creative contribution to the coursework (*CON*) and use of creative cognition (*COG*). Fifteen undergraduates completed a daily survey -- containing the I-PANAS-SF, UCCS, and CCP scales -- for fourteen consecutive days until coursework submission. ANOVA revealed that, if there was a decrease in *NA*, a co-occurring increase in *PA* resulted in an increase in both *CON* and *COG*, consistent with the model. However, if there was an increase in *NA*, a co-occurring increase in *PA* resulted in a decrease in *CON*, contrary to the model, and an increase in *COG*, consistent with the model. The highest scores of *CON* were achieved for a decrease in *PA* and an increase in *NA*, contrary to the model, and the highest scores of *COG* were achieved for an increase in *PA* and a decrease in *NA*, consistent with the model. The findings indicate that the model holds partially for undergraduate coursework, and it holds more for *GOG* than *CON*. The implications of these findings are discussed.

Affective shifts and creativity in undergraduate students' coursework

We live in a world where creativity is vital for all of us, but everyone has the potential to be creative (Runco, 2004). Creativity is connected to our mental health (Cropley, 1990), it is something critical for our adaptation in complex dynamic environments (Amabile, 1996), and it both shapes and is crucial for modern economy (Robinson, 2005; Burnard, 2006; Van Gundy, 1987). This is why knowing what could foster creativity is very important. Torrance (1977) defined creativity as "a successful step into the unknown, getting away from the main track, breaking out of the mold, being open to experience and permitting one thing to lead to another, recombining ideas or seeing new relationships among ideas".

Years of research focused on the link between positive moods and creativity, coming to the broad conclusion that positive emotions improve creativity (Lyubomirsky, King and Diener, 2005; Ashby & Isen, 1999). However, it has also been found that people can be less creative when in a positive mood than when in a neutral mood (Anderson & Pratarelli, 1999; Suzanne & Vosburg, 1997). On the other side, the research on the link between negative emotions and creativity has been very inconsistent, where it has been found to improve creativity (Adaman & Blaney, 1995; Carlsson, Wendt, & Risberg, 2002; Clapham, 2001), to decrease creativity (Mikulincer, Kedem & Paz, 1990; Vosburg, 1998) or to have no effect on creativity (Goritz & Moser, 2003; Verhaeghan, Joormann, & Khan, 2005). Past research has also looked at the effect of affects (a combination of moods and emotions) on creativity. Links have been found between positive affect and creativity (Isen, 1999; Baas, De Dreu & Nijstad, 2008; Binnewives & Wornlein, 2011; Amabile, Barsade, Mueller & Staw, 2005), but also between negative affect and creativity (De Dreu, Baas & Nijstad, 2008; George and Zhou, 2007).

Theories about creativity have arisen from the different research studies on the effect of affect on creativity. A major theory of affect and creativity is the Personality-Systems-Interaction (PSI) theory (Kuhl, 2000) which brings to light that when there is low positive affect the situation is objectively analysed by an individual, leading to the formulation of a course of action. As there is a gradual increase in positive affect there is also an increase in exploratory thoughts and actions by the individual, leading to the implementation of previously developed actions (Kuhl & Kazén, 1999). If negative affect is high, those situations or events that are perceived as a threat to an individual's goals are analysed in detail (Bless et al., 1996). If negative affect decreases, information processing becomes more focused on the broader context and shifts away from isolated elements (Förster & Higgins, 2005). This is important because it explains Kuhl's (2000) proposition that a shift in affect is vital for the manifestation of creativity. This is due to the fact

that new information can be processed and created with the aid of existing information and knowledge, leading to the production of new associations. In support of this was George and Zhou's (2002, 2007) Dual Tuning model and De Dreu et al.'s (2008) Dual Pathway to Creativity model. However, these models do not specifically focus on the dynamics of positive and negative affect, but on those individually.

According to the PSI theory, the dynamic of positive and negative affect leads to the integration of specific cognitive functions that favour and are paramount for creativity. Until the recent research by Bledow, Rosing, and Frese (2013) however, this idea has not been tested and developed in a systematic manner. Likewise, a large array of empirical research has investigated the idea of affective states, individually, not necessarily taking into consideration the dynamic interplay which is the underlying concept of PSI theory. The phoenix model of creativity proposes that an affective shift is when there is an increase in positive affect associated with a decrease in negative affect, resulting in heightened creativity. Therefore, Bledow et al. (2013) tested this model on a general sample of creative workday experiences in a variety of companies.

Mackay (2014) argued that the study conducted by Bledow et al. (2013) measured affect and creativity in a mixture of work activities and that the workers came from differing industries and occupations, which was broad. To overcome these limitations, they tested the Phoenix model by measuring creativity and affective shift in a small sample of work projects, in the same industry. Their results found seemingly contradictory results from the Phoenix model. Their analysis showed that when there was a decrease in positive affect, an increase in negative affect improved creativity. This may suggest that emotions act as a fuel for creativity and that an increase in negative affect is better than feeling both low positive and negative affect contemporaneously.

Mackay (2014) used self-rated creative contribution and peer rated creativity. In her study, participants rated how much they felt they were creative on their work projects. On the other hand, Rogaten and Moneta (2014) measured creative cognition, which looks at how much people engage in creative thinking. They studied the relationship between positive affect and the use of creative cognition on university students. They used a two wave study design looking at positive affect and creative cognition at two times (semester 1 and semester 2). They found that positive affect in studying and the use of creative cognition had a reciprocal causal relationship. This supports the idea that positive affect will increase creativity in studying. However, their study measured the two variables at two different points in time and on the broad spectrum of studying. This research led to the current study to measure creative cognition, as

participants may be engaging in creative thought whilst working on their coursework but still feel like they have not been creative; this is something that has not been investigated before, as the two things have been measured in diverse studies. The main goal of the current study is to investigate the relationship between positive affect, negative affect, creativity and creative cognition. The purpose is to investigate whether the phoenix model is applicable to a wider range of contexts and situations, other than a work environment, particularly focusing in a university context and the level of creativity put into coursework. This is important because creativity is used in our daily lives and being a student, and it is an integral part of the university life (Altman, 1999). In a world that keeps changing, creativity is also a very important skill as it allows people to adjust to every situation and to develop their potential (Bass et al., 2008).

In particular, this study aims to test the phoenix model, with the addition of creative cognition and flow in a scholastic environment such as university. The current study will look at the student's level of creativity and creative cognition every day for fourteen consecutive days, in one university module and on one specific coursework. This allows to measure creativity and creative cognition on a specific task rather than in a generic work environment, this is good because the differences in the environment and the nature of the task may have an impact on the results.

The research question under investigation is whether there is an increase in creativity and creative cognition in a student's coursework upon the experience of an affective shift.

The first hypothesis (H1) is that a decrease in negative affect in time will lead to an increase in creativity (1a), as well as an increase in creative cognition (1b). The second hypothesis (H2) is that an increase in positive affect in time will lead to an increase in creativity (2a), as well as an increase in creative cognition (2b). The third hypothesis (H3) is that a decrease in negative affect and an increase in positive affect will lead to a greater increase in creativity (3a) and creative cognition (3b) in students' coursework when they occur simultaneously than when they occur individually. This means that when, in time, negative affect decreases and positive affect increase creative contribution and creative cognition will be heightened compared to the effect of positive or negative affect alone or other interactions between the two.

Method

Participants

In the current study thirty-three third-year undergraduate students in psychology were asked to participate, out of which fifteen accepted. The participants were recruited from the PC6004 Applied Social and Developmental Psychology class at London Metropolitan University,

using convenience sampling. Of the remaining participants ($N=15$), eleven were female and four were male. The participants' age ranged from 21 to 37 ($M=23.33$).

Measures

All participants completed a survey that consisted of a set of questions that asked them about their age, gender, if they were in the PC6004 module, and if they were completing the first coursework for that module (Appendix A). The website SurveyMonkey.com was used to create and send online questionnaires to the participants through an automated system that sent them daily emails.

The questionnaires contained two questions, asking the participants their ID number given by the researcher and a question asking the participants what coursework they were working on. The survey contained the following scales: I- PANAS-SF inventory (Thompson, 2007), Use of Creative Cognition Scale (UCCS) in Studying (Rogaten & Moneta, 2013), and Creative Contribution to the Project (CCP) (Moneta & Amabile et al., 2010). The instructions for all measurements were modified to fit the current study. The dependent variables are self-assessed creative contribution and creative cognition, while the independent variables are positive affect and negative affect.

I-PANAS-SF inventory (Thomson, 2007). The I-PANAS-SF inventory (Thomson, 2007) measures positive and negative affect through a list of ten items, five positive adjectives (such as "Alert") and five negative adjectives (such as "Upset"). Participants are given the instructions to "Please carefully review the following adjectives and indicate to what extent you experience these feelings today while working on the coursework. By referring to the scale for each item, select the relevant number". The participants then score each adjective on a one to five scale ranging from one (none) to five (very much). The average of each set of five items is then calculated to achieve a positive and a negative affect score. The I-PANAS-SF has an internal consistency of .74 for negative affect and .80 for positive affect (Thompson, 2007).

Use of Creative Cognition Scale (UCCS) in Studying (Rogaten & Moneta, 2013). The Use of Creative Cognition Scale (Rogaten & Moneta, 2013) measures creative cognition through a set of five items. The items are rated on a five-point scale ranging from one (never) to five (always) and the average score from all items is measured to get a creative cognition score. The instructions for this measure were: "Below are a series of statements about personal preferences and behaviours. Please indicate how frequently you engage in each behaviour during your work on the coursework today based on the following rating scale". The UCCS has internal consistency of .82 (Rogaten & Moneta, 2013).

Creative Contribution to the Project (CCP) (Moneta & Amabile et al., 2010). The Creative Contribution to the Project (CCP) (Moneta & Amabile et al., 2010) consists of participants rating their creative contribution from one ("very low/very poor") to five ("very high/very good"). The instructions for the participants were: "Evaluate your creative contribution to the coursework today based on the following rating scale".

Procedure

Participants were approached by the researcher at London Metropolitan University. The researcher asked the participants if they would like to take part in a psychological study, and upon agreement they were asked if they were in the PC6004 Applied Social and Developmental Psychology module and undertaking the first coursework for that module. If the participants responded yes to both questions they were then handed a brief and consent form (Appendix B). Once the participants signed the consent form the researcher handed them a questionnaire to fill in and a form where the participants were asked to write their email address. The participants were sent an email with an ID number assigned to them by the researchers. The participants then received an email with a link to a questionnaire on Survey Monkey every day, at eight post-meridian, for fourteen days up until the day before their coursework deadline. At the end of the study the participants were sent an email thanking them for their participation with attached the Debrief (Appendix C).

Results

Descriptive statistics, Chronbach's Alpha coefficients (in parentheses), and intercorrelations of the study variables at time 1 and time 2 are presented in Table 1.

Table 1.

Means, Standard Deviations, Intercorrelations and Chronbach's Alpha coefficients (in parentheses) of the Study Variables at Time 1 and Time 2.

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Creative Contribution at Time 1	2.772	.777	-							
2. Creative Contribution at Time 2	3.049	.428	.214	-						
3. Creative Contribution at Time 1	3.294	.713	.396	.111	(.934)					

Cognition at Time 1									
4. Creative	3.223	.620	.561*	.356	.791**	(.906)			
Cognition at Time 2									
5. Positive Affect at Time 1	2.806	.666	.272	.097	.834**	.561*	(.835)		
6. Positive Affect at Time 2	2.919	.628	.381	.271	.303	.383	.521*	(.910)	
7. Negative Affect at Time 1	1.909	.789	.269	-.318	.367	.307	.271	.134	(.853)
8. Negative Affect at Time 2	1.685	.618	.146	-.412	.418	.277	.321	.120	.940** (.833)

Note. * $p < .05$, ** $p < .01$.

The values for all variables exceeded the threshold for internal consistency of .7 that Nunnally (1978) regards as satisfactory. All variables had a significant positive correlation between time 1 and time 2 except for creative contribution that had a non-significant positive correlation. Positive affect at time 1 with creative contribution at time 1 and positive affect at time 2 with creative contribution at time 2 has a non-significant positive correlation, which suggest that positive affect improves creativity. Negative affect at time 1 had a non-significant positive correlation with creative contribution at time 1 but negative affect at time 2 had a negative non-significant correlation with creative contribution at time 2, which is in line with hypothesis 1a. This suggest that negative affect in the first half of the coursework did not have an effect on creative contribution, but in the second half negative reduced creative contribution.

Descriptive statistics, Chronbach's Alpha coefficients (in parentheses), and intercorrelations of the change variables (values of the variable at time 2 minus value of the variable at time 1; positive values mean increase, negative values decrease, and 0 no change) are presented in Table 2.

Table 2.

Means, Standard Deviations, Intercorrelations and Chronbach's Alpha coefficients (in parentheses) of the Study Variables.

	<i>M</i>	<i>SD</i>	1	2	3	4
1. Change in Creative Contribution	.326	.802	-			
2. Change in Creative Cognition	-.071	.440	.028	(.922)		
3. Change in Positive Affect	.113	.634	.000	.639*	(.897)	
4. Change in Negative Affect	-.224	.297	.390	-.167	-.053	(.876)

Note. * $p < .05$

No correlation was found between change in positive affect and change in creative contribution, and a significant positive correlation was found between change in positive affect and change in creative cognition. This is not consistent with Hypothesis 1a, but it is consistent with hypothesis 1b, as positive affect correlates with creative cognition but not with creative contribution.

The correlation between change in negative affect and change in creative contribution was not significant, and the correlation between change in negative affect and change in creative contribution was not significant. This is not consistent with hypothesis 2a and 2b.

Self-rated creativity. A categorical variable was created for change in positive affect and change in negative affect. This was done by giving a value of 0 when there was a decrease in positive or negative affect and a value of 1 when there was an increase in positive or negative affect. Means, standard deviations for the change in creative contribution for positive and negative affect when there was a decrease or increase in positive and negative affect are displayed in Table 3.

Table 3.

Means and standard deviations for the change in creative contribution for change in positive and negative affect when there was a decrease or increase.

	Decrease in Positive Affect			Increase in Positive Affect		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Decrease in Negative Affect	7	-.037	.517	5	.646	.711
Increase in Negative Affect	1	2.200	-	2	-.137	.159

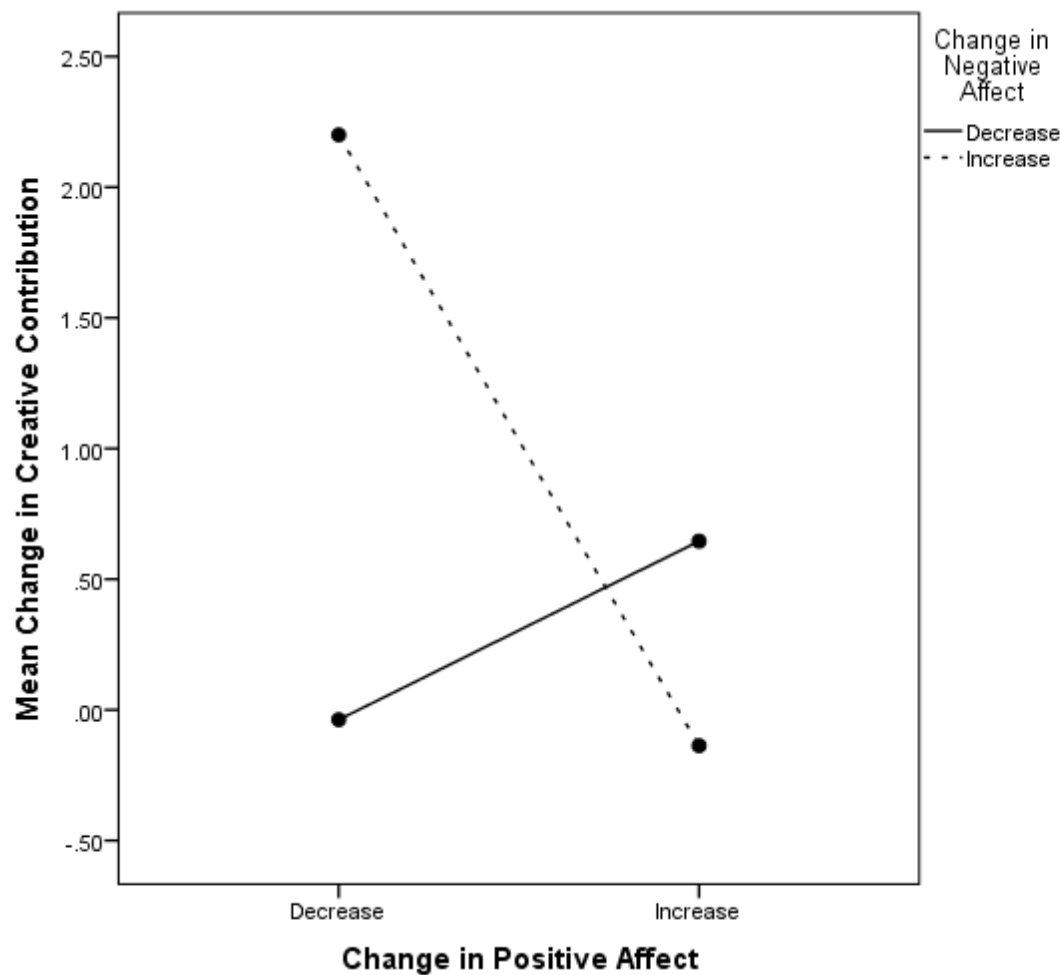
The increase in creative contribution was the strongest when there was an increase in negative affect and a decrease in positive affect, and the second strongest increase in creative contribution was when there was a decrease in negative affect and an increase in positive affect. This does not support H3a, as the affective shift did not result in the strongest change in creative contribution.

A two-way ANOVA was conducted that examined the effect of change in positive affect and change in negative affect on change in creative contribution. The dependent variable was change in creative contribution and the independent variables were the categorical values of change in positive affect and change in negative affect. The factors were between-participants. There was a non-significant main effect of positive affect on creative contribution. The main effect of change in positive affect was not significant, $F(1, 11) = 4.476$, $p = .058$. The main effect of negative affect was not significant, $F(1, 11) = 3.464$, $p = .090$. The effect of the interaction between positive and negative affect was statistically significant, $F(1, 11) = 14.926$, $p = .003$.

The effect of the interaction of change in negative affect and change in positive affect on creativity is displayed in Figure 1.

Figure 1.

Interaction of negative and positive affect on creative contribution.



A decrease in negative affect resulted in an increase in creative contribution when there was a co-occurring increase in positive affect, and a decrease in creative contribution when there was a co-occurring decrease in positive affect. This is consistent with hypothesis 3a, as a decrease in negative affect with an increase in positive affect results in an increase on creative contribution. An increase in negative affect resulted in a decrease in creative contribution when there was a co-occurring increase in positive affect and an increase in creative contribution when there was a co-occurring decrease in positive affect. This result does not support hypothesis 3a as increase in negative affect and a decrease in positive affect lead to an increase in creative contribution. This result could be due to negative affect fostering creativity instead of hindering it when positive affect decreases.

Use of creative cognition. The means, standard deviations for the change in creative cognition for positive and negative affect when there was a decrease or increase are displayed in Table 4.

Table 4.

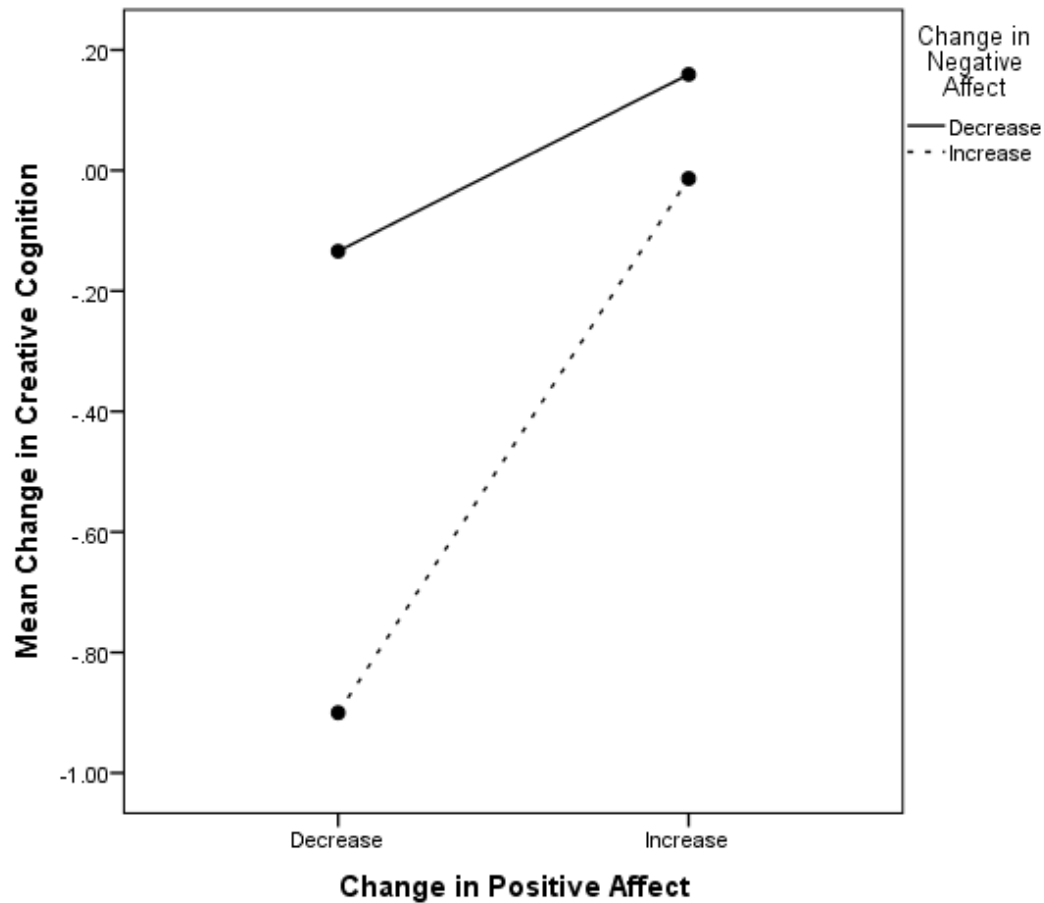
Means and standard deviations for the change in creative cognition for change in positive and negative affect when there was a decrease or increase.

	Decrease in Positive Affect			Increase in Positive Affect		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Decrease in Negative Affect	7	-.134	.311	5	.159	.517
Increase in Negative Affect	1	-.900	-	2	-.013	.284

The increase in creative cognition was the strongest when there was a decrease in negative affect and an increase in positive affect. There was a decrease in creative cognition for all other interactions, where creative cognition decreased the least when there was an increase in negative affect and an increase in positive affect. This supports the phoenix model as creative cognition only increased when an affective shift occurred.

A two-way ANOVA was conducted that examined the effect of change in positive affect and change in negative affect on change in creative cognition. The dependent variable was change in creative cognition and the independent variables were the categorical values of change in positive affect and change in negative affect. The factors were between-participants. The main effect of change in positive affect was not significant, $F(1, 11) = 4.806, p = .051$. The main effect of negative affect was not significant, $F(1, 11) = 3.041, p = .109$. The effect of the interaction between positive and negative affect was not significant, $F(1, 11) = 1.215, p = .294$. This does not support hypothesis 3b as the interaction of negative and positive affect did not have a significant effect on creative cognition.

The effect of the interaction of change in negative affect and change in positive affect on creativity is displayed in Figure 2.

*Figure 2.**Interaction of negative and positive affect on creative cognition.*

A decrease in negative affect resulted in an increase in creative cognition when there was a co-occurring increase in positive affect, and a decrease in creative cognition when there was a co-occurring decrease in positive affect. An increase in negative affect resulted in a decrease in creative cognition when there was a co-occurring increase in positive affect and a stronger decrease in creative cognition when there was a co-occurring decrease in positive affect. This is consistent with hypothesis 3b, as creative cognition increased only when an affective shift occurred. In addition the decrease in creative cognition was the weakest when both positive and negative increased, suggesting that it is better to have an increase in both affects than to have a decrease.

Discussion

The goal of this study was to investigate whether the phoenix model is applicable to a wider range of contexts and situations, looking at the interaction of change in time of the different variables. Hypothesis 1a and 2a were not supported by the results as negative affect and positive affect did not significantly correlate with creative contribution. Hypothesis 1b was not supported by results as negative affect did not have a significant correlation with creative cognition, but H2b was supported as there was a significant positive correlation between positive affect and creative cognition. If there was a decrease in negative affect, a co-occurring increase in positive affect resulted in an increase in both creative contribution and creative cognition, consistent with the model. However, if there was an increase in negative affect, a co-occurring increase in positive affect resulted in a decrease in creative contribution, contrary to the model, and an increase in creative cognition, consistent with the model. The highest scores of creative contribution were achieved for a decrease in positive affect and an increase in negative affect, contrary to the model, and the highest scores of creative cognition were achieved for an increase in positive affect and a decrease in negative affect, consistent with the model. The findings indicate that the model holds partially for undergraduate coursework, and it holds more for creative cognition than creative contribution.

Negative affect and creative contribution had a positive correlation at time1 and a negative correlation at time2, but change in time of negative affect and creative contribution had a positive correlation. These results are not line with H1a, as it is hypothesised that negative affect should have a negative correlation with creative contribution. Negative affect and creative cognition had a positive correlation at time1 and time2, but change in time of negative affect and creative cognition has a negative correlation. These result are in line with H1b but do not support it, as the correlation was not significant. The difference between the effect of change in negative affect on change in creative contribution and change in creative cognition could be due to the fact that as negative affect increases participants view themselves as more creative when they are actually engaging in less creative thinking.

Positive affect and creative contribution had a positive correlation at time1 and time2, but change in time of positive affect and creative contribution had no correlation. These results are not line with H2a, as it is hypothesised that in time positive affect should have a positive correlation with creative contribution. Positive affect and creative cognition had a significant positive correlation at time1 and positive correlation at time2, supporting this change in time of positive affect and creative cognition had a significant positive correlation. These results support H2b, as in time positive affect increased creative cognition. This is in line with Rogaten and

Moneta's (2014) results. The difference in the results between the hypotheses could be due to the participants thinking their creativity did not improve over time while actually engaging in more creative thinking.

The interaction of the change in time of the variables yielded interesting results. A decrease in negative affect resulted in an increase in creative contribution when there was an increase in positive affect, and a decrease when there was a decrease in positive affect. This is in line with H3a, as a decrease in negative affect with an increase in positive affect resulted in increased creative contribution. An increase in negative affect resulted in a decrease in creative contribution when there was an increase in positive affect and an increase when there was a decrease in positive affect. These results are not in line with H3a as increase in negative affect and a decrease in positive affect lead to increased creative contribution.

Overall, H3a was not supported by the results as creative contribution increased the most when negative affect increased and positive affect decreased. It seems that the royal path to self-rated creativity is sheer pain (increase in negative affect and decrease in positive affect): it is when students feel increasingly tense and weaker that they perceive the strongest growth in creativity. There are two possibilities that could explain these results. One, people do not know what they are talking about when they assess their creative contribution, i.e. they confuse feeling miserable with being creative. Two, people use emotions as power units use gasoline, in a way that at the end of a successful race they do not have much fuel left in the tank. Although there was a non-significant main effect of positive affect and negative affect on creative contribution, there was a significant effect on the interaction of negative affect and positive affect. This supports Kuhl's (2000) proposition that the interaction of positive and negative affect is vital for the manifestation of creativity.

A decrease in negative affect resulted in an increase in creative cognition when there was an increase in positive affect, and a decrease when there was a decrease in positive affect. An increase in negative affect resulted in a decrease in creative cognition when there was an increase in positive affect and a decrease when there was a decrease in positive affect. These results support H3b as the only increase in time of creative cognition occurred when there was a decrease in negative affect with an increase in positive affect. Interestingly, creative cognition decreased the least when negative affect increased and positive affect increased, suggesting that no matter what happens to negative affect, it is always better to have an increase in positive affect in time.

These results support the phoenix model proposed by Bledow et al. (2013). These findings are important because previously Mackay (2014) only tested the phoenix model using

self-assessed creative contribution and the results yielded by looking at creative cognition can give a possible alternative to how the phoenix model works and why Mackay (2014) may have not found supporting results. These findings could also be due to the coursework the students did not leaving much space for creativity, and creativity not being assessed in their work. Therefore, even though the students have been engaging in creative thinking, it could be that they did not rate their creative contributions as high due to the nature of the assignments. Nonetheless, it is important to consider the fact that the analysis of variance found no significant effect of the interaction of change in positive and negative affect in time on creative cognition.

It is important to note that this study had a limited sample size. Only three participants experienced an increase in negative affect in time, one of which had a decrease in positive affect, and two had an increase in positive affect. Hypothesis 3a was discarded based on the fact that creative contribution increased more when there was an increase in negative affect with a decrease in positive affect, but this result was based on only one participant that experienced this specific interaction which means these results should not be generalised, as the participant may be an outlier.

This study may have possible limitations along with advantages. This study used self-reported measures, which can be prone to response bias such as social desirability. The participants for this study were gathered using a convenience sample and could therefore not represent the whole population. Particularly the sample consisted of third-year psychology undergraduate students, whose knowledge about psychology may have had an impact on their responses. The participants sample included only fifteen participants, this could be due to the participants being gathered from a population of less than hundred students and the task being longitudinal. To overcome these limitations, future research may approach participants from different classes to have a bigger population to draw participants from. In the future, the study design may be changed from daily questionnaires to sending questionnaires on alternating days to reduce the load on the participants and improve participation.

This knowledge about what affects creativity and creative cognition, could be used in the workplace to try to control and manipulate positive and negative affect in order to improve creativity. Knowing that there has to be an interaction of both positive and negative affect to have a significant effect on creativity, companies may not need to worry too much about eliminating negative affect completely and instead focusing perhaps on helping reduce it towards the final timeframes of a project. Future research could explore the effect of negative affect and positive affect on creative cognition and creative cognition in more controlled settings.

The conclusion of this study is that the phoenix model is applicable to the student's coursework, and it is supported for creative cognition but not for creative contribution. A decrease in negative affect over time and an increase in positive affect over time lead to higher levels of creative cognition. Nonetheless the interaction of change in time of negative and positive affect had a significant effect on creative contribution, underlying the importance of both affects.

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Appendix A

Please respond to the following questions:

How old are you?

What gender are you?

- Female
- Male
- Prefer not to respond

Are you signed up to the PC6004 Applied Social and Developmental Psychology module?

- Yes
- No

Are you handing in the first coursework for the PC6004 module?

- Yes
- No

Appendix B

London Metropolitan University
Faculty of Life Sciences and
Computing



School of Psychology

PARTICIPANT BRIEFING-CONSENT FORM

Title of study: Affective shifts and creativity in undergraduate students' coursework

Name of investigator: Bianca Giunta

Name of supervisor: Giovanni Moneta

BRIEFING

The purpose of this study is to look at creativity while doing a coursework. This will be assessed using daily questionnaires. A brief introductory questionnaire will also be given for research purposes.

A questionnaire will be given after signing the consent form, asking five questions. A paper will be handed asking for the participant's email address. The email address is required so that the researcher can send emails with the questionnaires' links and the debrief. The researcher will not email the participants again after the end of the study unless requested. A surveymonkey link to the questionnaire will be send daily for 15 days starting 2 weeks before the deadline for the PC6004 Applied Social and Developmental Psychology first assignment. The questionnaires will contain 21 questions. The daily questionnaire will take about 2 to 3 minutes on average to complete.

The study will be conducted in accordance to the Ethical guidelines of the British Psychological Society. The data obtained will be used for research purposes; however the data will not be traceable to individual participants. You have the right to withdraw your data any time before the 21st of January 2015.

There will be a debriefing provided at the end of the study to clarify any queries that you may have. Additionally, you will be able to ask the researchers any further questions regarding the study.

If at any point you do not wish to continue with the task then you can withdraw.

If you agree to participate, please sign the consent form. The consent form will state your name and will be stored separately from the data obtained.

STUDY PARTICIPANT'S STATEMENT

I have been informed of and understand the purpose of this study and its procedures and

I agree to take part in the following research project.

I understand that agreeing to take part means that I consent to use my results for research purposes.

I also understand that in the debriefing session at the end of my participation I will have a further opportunity to ask any questions about this study.

I understand that the data collected for this study is strictly confidential and I will not be identifiable in any report of this study.

I further understand that I may withdraw from the study at any time up to the 21st of January 2015.

Print name

Signature

Date

INVESTIGATOR'S STATEMENT

I have informed the above named participants of the nature and purpose of this study and have sought to answer their questions to the best of my ability. I have read, understood, and agree to abide by the British Psychological Society's Code of Conduct, Ethical Principles and Guidelines for conducting research with human participants.

Signed:

Date:

Appendix C

London Metropolitan University
Faculty of Life Sciences and Computing
School of Psychology

**PARTICIPANT DEBRIEF FORM**

Title of study: Affective shifts and creativity in undergraduate students' coursework

Name of investigator: Bianca Giunta	Email of investigator: big0113@my.londonmet.ac.uk
Name of supervisor: Giovanni Moneta	Email of supervisor: g.moneta@londonmet.ac.uk

The purpose of this study is to investigate whether negative and positive affect (emotions) and flow have an impact on creativity and creative cognition. The study is based on previous research, such as the phoenix model of Blewlow, Rosing and Frese (2013) that states that creativity is like the mythological creature of the Phoenix which is a bird that burns into ashes and then is reborn more beautiful than before. Therefore, negative affect is required for creativity to occur and, once the negative affect decrease and the positive affect increases a person will experience an increase in creativity. In this study it hypothesised that an increase in positive affect and a decrease in negative affect will result in an increase in creativity; and an increase in positive affect will also lead to an increase in creative cognition. Moreover an increase in flow will lead to an increase in creativity.

Therefore when positive emotions increase, negative emotions decrease and flow increases these will lead to an increase in creativity and creative thought in an individual.

If you would like, here are a few links on the topics covered in this study:

<http://psychology.about.com/od/PositivePsychology/a/flow.htm>

<http://www.brainstorming.co.uk/tutotials/creatviethinking.html>

<http://www.pbs.org/thisemotionallife/topic/creativity/creativity>

As stated in the brief you still have the right to withdraw your data up to the 21st January 2015. You can do so by contacting the researchers (See contact details above).

If you have any further questions or concerns regarding this study you can email us.

Your participation in this study is highly appreciated and we would like to thank you for your time.