

The Effect of Creativity and Object-Play on Adult Playfulness

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Declaration

I declare that this submission is my own work. Where I have read, consulted, and used the work of others, I have acknowledged this in the text.

Signed: Katerina Hruba

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Abstract

Adult playfulness (AP) can be fostered through reflection. Trait activation theory (TAT) was proposed in relation to AP interventions and studied particularly in relation to play-cues, which have the capacity to influence AP, as do toys during object-play. Both object-play and AP have been linked to creativity. This study assessed the effects of creativity (high, low), intervention (pre-test, post-test) and intervention type (reflection, object-play) on AP. A quantitative 2x2x2 between-within groups in-person factorial design was employed on a sample of 54 students (applied psychology = 34 other = 20) recruited through snowball and convenience sampling. The creativity was assessed using Alternate Uses Task (AUT), dividing participants into two groups that were further randomly divided into intervention type. A questionnaire of AP was completed in the pre-test (M = 137.79, SD = 2. 365) and after a week, in the post-test (M = 143.89, SD = 2.515). A three-way between-within ANOVA was used to test the hypotheses. Object-play was as significant as reflection and the scores increased in the post-test. The lack of significant interaction between the three contradicts the analysed research. Practical implications discuss the use of object-play as an intervention of AP. The valid use of TAT, diverse scoring methods for AUT, the importance of the present findings to AP and the lack of control over the experiment are discussed.

1. Introduction

Adult Playfulness (AP) is a trait that enables an individual to reshape/change the perspective of mundane things into joyful/interesting/intriguing experiences (Proyer, 2017). The studies on AP vary depending on the nature of the definition (Scharp et al., 2022). The present study will use the summary of traits perspective, which allows for flexibility in traits (Shen et al., 2014). Furthermore, Proyer et al., (2020) found evidence that AP is malleable. Extensive research on the possible factors has been conducted on play-cues, which are used as trait activation (West et al., 2016; Yarnal & Qian, 2011). These are also toys with features that allow for imagination (Heljakka, 2016; Sicart, 2017). Creativity is a desirable and malleable trait (Kaufman, 2018) and was found to have a causal relationship with both AP and object-play (West et al., 2016; Bateson, 2015; Gordon, 2014; Brown, 2008). Therefore, the present study will research the causal relationship of the three together.

1.1 Adult Playfulness

Playfulness research tends to centre around children, whereas studies that concern adults focus on therapeutic or work settings (Proyer & Ruch, 2011). Therefore, it has been reported as an understudied topic (Yarnal & Qian, 2011; Van-Vleet & Feeney, 2015; Yue et al., 2016). This could be due to its regard as a light-hearted topic or because adults associate AP with child-like behaviour (Power, 2011). However, AP has been gaining more attention due to the many benefits associated with it (Barnett, 2017; Proyer (2014); Monahan, 2014).

Proyer (2014) cited the layperson's perception of the benefits of playfulness as positive mental health, stress-coping, entertainment, and creativity. Several benefits of AP have been identified, such as avoiding boredom, enhanced relationship satisfaction and academic performance, physical well-being, improved mood, belongingness, and decreased stress (Andersen et al., 2022; Brauer et al., 2021; Yarnal & Qian, 2011). Furthermore, Yue et al., (2016) found correlational evidence between overcoming adversity and humour associated with AP. Thus, Lockwood and O'Connor (2016) have proposed playfulness as promoting mental health, engagement, and purposefulness, and may be used to develop coaching strategies. These findings provide correlational evidence of AP's benefits; however, Power (2011) stated that the field requires more experimental research. Hence the present study will employ an experimental design.

Proyer et al., (2020) conducted an experiment on development of AP, well-being, and reduction of depression symptoms through reflection intervention. The experiment was conducted on 1,776 participants. It was conducted online which according to Cristaldi et al., (2022) is a sound methodology. The experimental group reported three playful things they did every day for a week and reflected on how they could use their playfulness. This could've caused possible confounding variables due to the longitudinal nature (Caruana et al., 2015). The exercises were created from the positive psychology tradition to increase well-being. The control group was asked to reflect on the memories of playfulness from childhood. The findings uncovered low to moderate effects on heightened playfulness that lasted over a period of two months. Hence, the present study will use reflection as an active control group (Boot et al., 2013). Furthermore, Proyer et al., (2020) recommended that future studies use Trait Activation Theory (TAT) as a basis for new interventions. TAT states that a trait, even though not as susceptible to change, can be evoked and fostered through trait-like cues (Tett et al., 2013). The present study will follow TAT by employing object-play as a factor of AP.

1.2 Play

Van-Vleet and Feeney (2015) state that adult play is type of behaviour that wilfully involves joy, excitement and a present attitude and is immersive to the players. Play is often used interchangeably with playfulness and therefore has had a similar rise in popularity (Proyer, 2017; Tonkin & Whitaker, 2019; Whitebread & Basilio, 2013). Therefore, research on play in adults is limited (Van-Leeuwen & Westwood, 2008). Nonetheless understudied, Van-Vleet and Feeney, (2015) found the following benefits associated with play in adulthood; positive feelings, coping ability, and health behaviour. Andersen et al. (2022) cited many health benefits from play, including the reduction of fatigue, stress, and boredom, trust and cohesion, and enhanced creativity.

The cited benefits can be attained by employing different types of play (Van-Vleet & Feeney, 2015). Object-play, which is the use of an inanimate object for solitary or social play (American Psychological Association, n.d.), was not included. This could be attributed to the stigma of behaving childishly, associated with object-play or toy-play (Heljakka, 2016). Nevertheless, Van-Leeuwen and Westwood (2008) advise that future studies should concentrate on play-objects as an important factor for AP. Play-objects or playthings are integral to inviting an adult to play and would ideally have no backstory, a simple design, and be open to interpretation (Sicart, 2017; Heljakka, 2016; Van-Leeuwen & Westwood, 2008). To satisfy this recommendation, the present study will use the "monkey noodles", classified as simple, easy-to-use toys (Smythstoys.com).

1.3 Play and Playfulness

Proyer (2017) stated that the two concepts (behaviour and trait) are not easily quantifiable, and limited research exists on the two together. However, many use them interchangeably (Scharp et al., 2022; Proyer, 2017; Tonkin & Whitaker, 2019; Whitebread & Basilio, 2013). Sicart (2017) distinguished the two by stating that playthings that satisfy the requirements of a play-cue spark the play behaviour and, therefore, AP. This perspective on the causal relationship of play and playfulness, was used often in the organisational setting on playful work, and evidence has been acquired in support of TAT (Qian & Yarnal, 2011; West et al., 2016). However, the research focused on organisational goals such as creativity, engagement, leadership, and performance, (Bakker et al., 2020, 2021; Liu et al., 2022). By exploring methods of fostering desirable experiences at work, Scharp et al., (2019) found that the use of play cues would enhance the interest in playfully working. Playfulness is more easily evoked through play to reach the organisation's goals, such as creativity (West et al., 2016).

The use of object-play to evoke playfulness can be underlined by the Hebbian resonance theory explained by Power (2011). According to this theory, the specific elements or cues that occur simultaneously to events or other cues create associations. Therefore, when one is exposed to a play-cue it might associate AP. The present study will employ object-play as a trait activation cue as studied by Scharp et al., (2019), using a toy as factor of playfulness (Heljakka, 2016; Sicart, 2017).

1.4 Creativity

Kaufman (2018) stated that creativity could be defined as the ability to produce something original and useful. However, creativity is also conceptualised as a process possibly affected and developed by cognition, individual differences, specific social situations, motivations, etc. (Brandt, 2021; Kumar et al., 2017). Nonetheless creativity is often conceptualised as a trait, it appears to be highly desirable and worth developing (Hennessey and Amabile, 2010). Furthermore, Kaufman (2018) reported on the following benefits: innovation, openness to new possibilities, job satisfaction, happiness, and mental and physical fitness, finding life's meaning. Furthermore, creativity can be supported through playfulness and experimenting with new ideas and points-of-view due to the experimentation with perspectives and problem-solving associated with play (Kumar et al., 2017). However, it is often studied on artistically-oriented sample (Proyer et al., 2019), which contradicts the suggestions of Simonton (2017), stating that discipline is irrelevant for creativity.

The measurement of creativity is debated due to the abundance of research on the topic and the inconsistencies on the definition (Barbot et al., 2019; Hennessey and Amabile, 2010). Barbot et al., (2019) outlined several tests that have been standardised for measuring creativity, including the Alternate Uses Task (AUT). The present study will employ the AUT, commonly used to assess the four aspects of creative potential: flexibility, originality, fluency, and elaboration (Alhashim et al., 2020). However, Kudrowitz and Dippo (2013) proposed a method of scoring which seems to be reliable and straightforward; the number of uses increases with creativity above nine, due to increasing openness to experimentation. The method outlines that people first state the simple accessible uses, and after nine uses, creative potential starts to rise.

1.5 Playfulness, Play and Creativity

An abundance of research identifies creativity in a strongly positive relationship with playfulness (Bateson & Nettle, 2014; Proyer et al., 2019; West et al., 2016). Some claim that playfulness might have an impact on creativity (Bateson, 2015; Gordon, 2014). Others state that creativity and playfulness are integrated (Guitard et al., 2005; Yarnal & Qian, 2011). There does not seem to be much consensus on the nature of the relationship (Proyer et al., 2019). This may be due to inconsistencies in creativity research and scoring approaches (Barbot et al., 2019).

However, there is consensus on the causal relationship between play and creativity (Scharp et al., 2022; West et al., 2016). Brown (2008) examined the role of play with toys in workplace and its benefits on risk-taking, consecutively it encourages experimentation and fun-seeking which would, in turn, enhance creativity. Scharp et al., (2021) corroborate this, stating that creativity is fostered by play due to its nature of experimenting with everyday reality. West et al., (2016) found that this might be due to intrinsic motivation, which sparks creativity; play-cued group was more creative due to an increased ability to collaborate intrinsically. Object-play, as stated by Brown (2008), is crucial for creatively approaching a problem (e.g., developing a prototype, approaching problems from different perspectives).

Bateson and Nettle (2014) conducted a study on 1,536 participants, predominantly over the age of 55, consisting of majorly women. The findings reported that participants self-perceiving themselves more creative believed they were more playful and vice versa. Creativity was also negatively correlated with age. The AUT was used to validate the measure of playfulness as a predictor of creativity. The AUT was employed by giving the participants two objects to list alternate uses for (jar, paperclip). The scoring was based on the time taken to list ten uses. According to Kudrowitz and Dippo (2013), the AUT should not be scored in this way, because, evidently, the level of high creativity begins at nine uses. Bateson and Nettle (2014) used the Newcastle Personality Assessor self-report survey was employed with planted questions about playfulness and openness. However, according to Barbot et al., (2019), self-reported measures are not as reliable as standardised tests.

Therefore, the research agrees that play and playfulness (together or consecutively) affect creativity (Qian & Yarnal, 2011; Bateson, 2015;; Scharp et al., 2022). There is a large body of research on play, playfulness and creativity that is either correlational or cross-sectional (Van-Vleet & Feeney, 2015). Therefore, the present study will employ an experimental design. Furthermore, the remainder of the research is methodologically inconclusive due to the inadequate use of standardized creativity tests (Proyer et al., 2019).

1.6 The Present Study

The present study aimed to address the identified gaps. Proyer (2017) stated that there is insufficient research on AP. Van-Vleet and Feeney (2015) emphasised this in relation to adult play and emphasized the need for experimental research concentrating on play and its effects on playfulness in playful and non-playful adults. Proyer et al., (2020) stated that future research should employ experimental design and consider fostering AP reflecting TAT. Sicart (2017) stated that a playfully designed object can enhance playfulness. Proyer et al., (2019) stated that there is a need for experimental research on creativity and play to determine when their causal relationship arises. Furthermore, future research should employ standardised creativity tests. Power (2011) stated that future research should be done on both creative and non-creative students. Hence, the present study will employ an experimental design, focusing on play and AP, using object-play as the assessment method. It will also utilise the standardised AUT test of creativity, scored as recommended by Kudrowitz and Dippo (2013), to assess its causal relationship with playfulness.

1.7 Research Questions and Hypotheses

RQ1: Does intervention type (object-play, reflection) affect adult playfulness?

H2: There will be a significant difference for the participants, on adult playfulness based on the intervention type (object-play, reflection).

H3: There will be a significant difference for the participants, on adult playfulness based on the intervention (pre, post).

RQ2: Does creativity (high, low) affect adult playfulness?

H1: There will be a significant difference for the participants, on adult playfulness based on their creativity level (high, low).

H4: There will be significant interactions between creativity, intervention type and intervention. There were no significant interactions between creativity, intervention type and intervention (pre-test, post-test).

2. Method

2.1 Design

A quantitative, 2x2x2 offline between-withing subject's design was employed to conduct the present experiment. The independent variables (IV) were creativity (low, high) and intervention type (object-play, reflection) and intervention (pre-test, post-test). The dependent variable (DV) was AP. The OLIW scale was used to assess AP (Appenix A). All variables are operationalised in Figure 1.

Figure 1

A visual representation of the procedure and the operationalised variables.



2.2 Participants

Snowball and convenience sampling were used to recruit a total of (N=74) participants on the IADT campus or in lectures. However, 30 participants were subsequently excluded due to the incompletion of the post-test. The final sample (Figure 2) consisted of 54 participants (21 males, 32 females, 1 other) which were 37% from other and 63% from applied psychology.

Figure 2

Pie chart presenting the proportion of gender.



2.2 Materials

Microsoft Forms software was used to deliver the information sheet (Appendix B), (including the details of the present research, the researcher's contact details and the possible withdrawal from the study), the consent form (Appendix C), (ensuring the age (over 18), consent and anonymous nature of data use), the demographic information form (Appendix D), the debrief (Appendix E) along with the confirmation of data use (Appendix F) and the questionnaire. The obtained data was converted to Microsoft excel and analysed through IBM SPSS Statistics Version 29.

AP was measured on a 7-point Likert scale, OLIW. The measure consists of four facets: Other-directed, Light-hearted, Intellectual and Whimsical playfulness. The convergent validity with other playfulness scales and correlations between 3 and 30% with the structure of the big-five personality scale. The Cronbach alpha ranged between 0.67 and 0.87 (Proyer, 2017). The Cronbach's alpha for the 28-items was 0.87 in the present study (Appendix G). AUT is a standardised measure of creativity and the reliable scoring should be a time constraint (three-minutes) and assessed by number of uses listed for a paperclip (over nine = high, below nine = low) Kudrowitz and Dippo (2013). The present study followed this scoring. For examples see Appendix X.

2.3 Pilot

Pilot study was conducted on four volunteers, prior to the experiment. Feedback was given on the clarity of the provided information, time estimation and smoothness of the procedure.

2.4 Procedure

Participants recruited in-person and in lectures in IADT, were invited to come on a set time and room on the campus. Upon arrival, participants were asked to read and complete the information sheet and consent form, accessed by a provided QR code from Microsoft forms. Subsequently, the procedure followed the process outlined in Figure 1. The AUT was conducted by paper-pen form, using the method outlined by Kudrowitz and Dippo (2013). Subsequently, participants were randomly allocated into one of two intervention types. Object-play group was given a toy with which they were asked to play every day for a week. Reflection group followed a replication intervention by Proyer et al., (2020); participants were given printed AP definition and asked to write down "three playful things" the participants did, every evening for a week. The participants were then asked to return after a week to complete the post-test OLIW. They were also given the debrief via a provided QR code.

2.5 Ethics

The present study was approved by the Department of Technology and Psychology Ethics Committee (DTPEC) completing the amber ethics route (Appendix J). The treatment of the participants was in accordance with the ethical standards of the Psychological Society of Ireland.

3. Results

3.1 Overview of Results

A mixed 2x2x2 factorial analysis of variance was conducted through the IBM SPSS Statistics Version 29, to determine the effects of intervention (pre-test, post-test) intervention type (objectplay, reflection) and creativity level (low, high) on adult playfulness. The independent variables were intervention, intervention type and creativity. The dependent variable was adult playfulness. The participants were grouped based on the IV1; creativity level, followed by IV2; intervention type, resulting in four groups tested twice. There were 28 questions completed on the adult playfulness questionnaire (OLIW).

3.2 Descriptive Statistics

3.2.1 Analysis 1: Intervention and Adult Playfulness.

The Table 1 below displays the descriptive statistics.

Table 1

	Mean,	standard	deviation,	range	and n	value	for	adult	playfulnes	s.
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Within-Subjects Factors	Level	n	М	SD	Range
Intervention	Pre-test	54	137.796	2.365	77
	Post-test	54	143.89	2.515	81

3.2.2 Analysis 2: Intervention type and Adult Playfulness.

The Table 2 below displays the descriptive statistics.

Table 2

Mean, standard deviation, range and n value for adult playfulness in object-play and reflection intervention type.

Between-Subjects Factors	Level	Playfulness scores	n	М	SD	Range
	Object- Play	Pre-test	28	136.393	3.518	77
Intervention Type		Post-test		139.71	3.297	73
	Reflection	Pre-test	26	139.308	3.170	57
		Post-test		148.38	3.695	67

3.2.3 Analysis 3: Creativity and Adult Playfulness.

The Table 3 below displays the descriptive statistics.

Table 3

Mean, standard deviation, range, and n value for adult playfulness in high and low creativity levels.

Between-subjects Factors	Level	Playfulness Scores	n	М	SD	Range
	Low	Pre-test	25	139.200	3.739	77
Creativity		Post-lest		147.20	4.100	81
	High	Pre-test	29	136.586	3.044	56
		Post-test		141.03	3.042	26

3.2.4 Analysis 4: Interaction between Intervention, Intervention Type and Creativity Level on Adult

Playfulness.

Table 4 below displays the descriptive statistics.

Table 4

Means, standard deviations and n values for the interactions of creativity, intervention type and intervention on adult playfulness.

Intervention	Intervention Type	Creativity	Μ	SD	n
Pre-test	Object-play	Low	133.769	20.017	13
		High	137.933	16.135	15
	Reflection	Low	145.083	15.900	12
		High	135.143	17.150	14
Post-tost	Object-play	Low	137.77	19.464	13
FUSI-LESI		High	139.53	13.260	15
	Reflection	Low	157.42	16.866	12
		High	142.64	19.575	14
Pre-test Post-test	Total Total	Total Total	137.796 143.89	17.021 18.484	54 54

3.3 Inferential Statistics

A three-way between-within groups ANOVA was conducted to examine the effects of intervention, intervention type and creativity on adult playfulness.

3.3.1 Assumptions

Prior to analysis the appropriate assumptions for a three-way ANOVA were tested to secure the according statistical analysis (summarised in Table 5; see Appendix H).

Table 5

Box's test of homogeneity of intercorrelations, Levene's test of homogeneity of variances, Shapiro-Wilk test of normal distribution

Test of	Intervention	Intervention	Creativity	Test	Ρ	Assumption
Assumption		type		statistic		
Box's M	*	*	*	1.482	0.148	Not
						violated
Levene's	Pre-test	-	-	0.218	0.884	Not
test	Post-test			1.347	0.270	violated
Shapiro-	Pre-test	Object-play	-	0.969	0.553	
Wilk		Reflection		0.929	0.075	Not
	Post-test	Reflection		0.106	0.272	violated
		Object-play		0.990	0.994	
Shapiro-	Pre-test	-	Low	0.966	0.555	
Wilk			High	0.945	0.132	Not
	Post-test		Low	0.981	0.911	violated
			High	0.954	0.237	

3.3.2 Three-way Between-Within Groups ANOVA (Appendix I)

H1: There will be a significant difference for the participants, on adult playfulness based on their creativity level (high, low).

There was no significant difference for the participants on adult playfulness based on the creativity level (high, low), F(1,50) = 1.211, p = 0.276, observed power= 0.190. However, pairwise comparisons showed that nonetheless insignificant, there was a difference on the adult playfulness between the two groups as represented in Figure 1.

Figure 3



Line graph presenting the differences between creativity levels on adult playfulness.

H2: There will be a significant difference for the participants, on adult playfulness based on the intervention type (object-play, reflection).

There was no significant difference for the participants on adult playfulness based on the intervention type, F (1,50) = 3.358, p= 0.73, observed power= 0.435. However, pairwise comparisons showed that nonetheless insignificant, there was a difference on the adult playfulness between the two groups, (see Figure 2).

Figure 4



Bar graph showing the difference of the intervention type on adult playfulness.

H3: There will be a significant difference for the participants, on adult playfulness based on the intervention (pre, post).

There was a significant difference for the participants, on adult playfulness based on the intervention (pre, post), F (1,50) = 9.409, p= 0.003, partial eta squared = 0.158. *Figure 3* shows the differences in playfulness scores before and after the intervention.

Figure 5

A line graph representing the differences in adult playfulness score before and after each intervention.



H4: There will be significant interactions between creativity, intervention type and intervention. There were no significant interactions between creativity, intervention type and intervention (pre-test, post-test). Table 6 below shows the inferential statistics for the interactions.

Table 6

Degrees of freedom, F values, significance and observed power for the interactions of creativity, intervention type and intervention.

Interactions	df	F	Р	Observed Power
Intervention * Intervention type	1	9.409	0.092	0.853
Intervention * Creativity	1	9.409	0.387	0.391
Intervention * Intervention type * Creativity	1	9.409	0.770	0.137

4. Discussion

4.1 Overview

The present study aimed to examine the effects of creativity and intervention type on adult playfulness. Furthermore, it assessed whether there is an interaction between creativity and intervention type that would affect adult playfulness.

Hypothesis 1: there will be a significant difference on adult playfulness for the participants based on creativity level (low, high), was not supported. This finding was unpredicted, due to the abundance of literature stating that there is a causal, correlational, or integral relationship between creativity and AP (Bateson & Nettle, 2014; Guitard et al., 2005; Proyer et al., 2019; Qian & Yarnal, 2011). However, this experiment was done on a considerably small sample size (low= 25, high= 29) and the observed power was 0.391, which implies that there was a 39% chance of finding significance in the sample where it is present in the population.

Furthermore, there were differences found between the two groups (see Figure 1). The low creativity group seemed to have higher scores of AP in the pre-test and the increase after the intervention was higher than the high creativity group. This directly contradicts the findings of Bateson and Nettle (2014), stating, that creativity positively correlated with AP. Creativity was measured with AUT, which has mixed findings on reliability (Alhashim et al., 2020; Barbot et al., 2019). Therefore, the reason for the contradictory findings of the present study, could be caused by the lack of consistency in the research (Barbot et al., 2019; Kudrowitz & Dippo, 2013).

Hypothesis 2: there will be a significant difference on adult playfulness based on the intervention (pre-test, post-test), was supported. As proposed by Proyer et al., (2020), AP is malleable to change, therefore the present finding was predictable. This finding also corroborates with the predictions of Scharp et al., (2021) which state that AP can fluctuate based on environmental cues. Perhaps since the participants were asked to either reflect on everyday playfulness or play with a toy, the present study provides evidence for the use of TAT a valid theory underlying AP intervention.

Hypothesis 3: there will be a significant difference on adult playfulness based on the intervention type (object-play, reflection), was not supported. This finding implies that both object-play and reflection had the same significance. This was an expected finding as the reflection group was a partial replication of a study by Proyer et al., (2020), which also found significance. Therefore, the present finding validates object-play as an intervention. This finding was expected as abundant

research states that playfulness could be evoked by play cues or play activities (West et al., 2016; Yarnal & Qian, 2011). This also supports Sicart's (2017) findings that a toy designed to spark the play behaviour functions as a cue for play.

Hypothesis 4: there will be significant interactions between intervention, intervention type and creativity on adult playfulness. This finding is surprising as there is an identified link between the variables in the research (Bateson & Nettle, 2014; Proyer et al., 2019; West, et al., 2016). Perhaps this is due to the study was conducted over a week with an orientation away from the organisational setting, contrary to the discussed research. Aligning with Sicart (2017), context could affect playfulness. This also somewhat aligns with the findings of Bateson (2015) which state that playfulness is affected by context and makes a clear distinction of playful play which is contrary to organised, goal-oriented play, presented in the analysed research. Proyer et al., (2019) also stated that creativity is possibly the result of playfulness and the play behaviour, so perhaps the results would have been different if creativity was tested twice along with playfulness.

4.3 Implications

4.3.1 Theory

The present study assessed playfulness according to the conceptualisation of Shen et al., (2014); Proyer et al., (2019) which consider it a trait. Proyer et al., (2020) recommended that trait could be developed through TAT. Several studies concentrating on the organisational setting have tested whether TAT is relevant to playfulness (Liu et al., 2022; Scharp et al., 2019). Following this trend Bakker et al., (2021) provided evidence that individuals with high AP create and surround themselves with playful cues, which in turn makes them more playful. Nonetheless, some criticize this conceptualisation (Power, 2011) due to the seemingly stable nature of the traits, the current findings support the theoretical framework of Shen, et al., (2014) which poses playfulness in the *"summary view of traits"* (Shen et al., 2014, p. 60). This framework allows for flexibility, malleability, and state-like features in a trait.

The present findings also support the Hebbian resonance, explained and proposed as an underlying concept of playfulness factors by Power (2011). This concept is a process of brain functions that create associations by occurring simultaneously. Which was represented in the present study by the toy (in the object-play condition) and the playfulness definition on paper (in the reflection condition). Since the participants were asked to be exposed to these cues, they possibly formed associations and therefore increased the participant's playfulness (Power, 2011).

4.3.2 Practice

The findings of the present research point to several practical uses. Firstly, the finding that such a beneficial trait (Lockwood & O'Connor, 2016; Proyer et al., 2020) is a malleable trait, adds to the body of research that it can be used in therapeutic settings (Guitard et al., 2005; Monahan, 2014), in everyday positive psychology interventions (Proyer & Ruch, 2011) and as abundantly mentioned, in organisational settings (Scharp et al., 2019; Liu et al., 2022). Secondly, the finding of object-play as a valid AP intervention, opens possibilities of new research on the benefits of object-play and its use for everyday purposes. Furthermore, it could limit the negative notion of shame associated with object-play in adults (Heljakka, 2016).

4.4 Strengths and Limitations

The present research aided to fill the gap in knowledge in psychology as reported by Proyer et al., (2020) that playfulness is an understudied topic in need of academic attention. This gap concerns specifically adults (Gordon, 2014; Guitard et al., 2005; Yarnal & Qian, 2011) and research specific to AP rather than a bridge to other goals (Tonkin & Whitaker, 2019; Lockwood & O'Connor, 2016; Shen et al., 2014). Furthermore, it has been reported by Power (2011) that there is a general lack of experimental and longitudinal research on playfulness, which this study satisfies. Proyer et al., (2019) reported about the lack of empirical evidence on the clarity of the relationship between playfulness and creativity which the present study directly addresses. This is also the first study to the researcher's awareness that has used the theory of trait activation (Tett et al., 2013) to introduce and test object-play as one of the factors of adult playfulness, which was found significant and therefore basis for the development of future research. Along with this point, the present study clearly separated play from playfulness which the much of the previous literature failed to do (Van-Vleet & Feeney, 2015; Proyer, 2017).

The sample assessed in the present research consisted of undergraduate students of more diverse sample, than just psychology students (Proyer et al., 2020). Furthermore, it tested creativity of not only students of art courses (Proyer et al., 2019), which adds to the gap in knowledge about the level of creativity of psychology students compared to artistically oriented courses (Simonton, 2017).

Finally, Boot et al., (2013) stated that an active control group (expected to have significance), is more accurate to finding true significance. Furthermore, this type of research is scarce, and that is where the present research filled a gap in knowledge.

The limitations of the present study consisted of the minimum experimental control, which allowed for an abundance of possible confounding variables occurring during the duration of the study (Caruana et al., 2015). Furthermore, to ensure anonymity, the researcher had limited ways of contacting the participants to return for the post-test, therefore many participants had to be excluded from the study and the recruiting and sampling had to be done multiple times. As Caruana et al., (2015) stated, this should be carefully specified to achieve participation and limit excluding large sums of participants.

Nonetheless, AUT has been assessed and thoroughly justified, the operationalisation of creativity caries across psychology research and even though there is evidence AUT can be used for these purposes, the scoring is debated (Barbot et al., 2019). Therefore, the validity and reliability of this test, and the findings derived from it could be disputed (Alhashim et al., 2020).

4.5 Suggestions for Future Research

Aligning with the aforementioned literature, the future research should install more rigid guidelines in order to avoid losses in participation, by forming an online platform for the participants to interact with the researcher (Caruana et al., 2015). Additionally, Cristaldi et al., (2022) stated that using online platforms to conduct an experiment is a sound methodology and provides similar effects as a lab setting, therefore it is recommended to involve online environment in the future research.

Barbot et al., (2019) presented an abundance of recommendations for future creativity studies, specifically outlining that AUT should be done in multiple ways to reach the desirable creativity. Therefore, future research might consider combining the various ways of scoring (Alhashim et al., 2020; Kudrowitz & Dippo, 2013) and reach a more thorough representation of the participant's creativity level.

The present study was conducted through the OLIW questionnaire of adult playfulness, developed by Proyer (2017). This questionnaire has been reported as reliable and valid in several studies (Brauer et al., 2021; Proyer et al., 2018, 2020) and provided no complications to the present study. However, Future studies might consider concentrating on the four aspects of playfulness outlined by Proyer (2017), to gain a deeper understanding about the usefulness of newly proposed interventions. Finally, future research should concentrate on everyday adult playfulness, rather than adult playfulness in work settings to reach an organisational goal (Bateson, 2015; Yarnal & Qian, 2011).

4.6 Conclusion

In conclusion, the present study has expanded on the growing body of research on adult playfulness, play and creativity. Pointing to object-play being a promising predictor of adult

playfulness, which supports the literature on TAT (Bakker et al., 2020; Tett et al., 2013), and allows for new research to emerge on play and playfulness having causal effect, rather than one being part of the other (Bateson, 2015; Power, 2011). Furthermore, the finding that creativity might not have a causal effect with playfulness, adds to the debate of the nature of the relationship (Proyer et al., 2019). The theoretical implications of TAT and Hebbian resonance were discussed along with the benefits of the longitudinal nature of the present experiment and the limitations pointing to a suggestion for diverse methodologies for future research in adult playfulness.

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6. Appendices

6.1 Appendix A: OLIW questionnaire

PsycTESTS[®]

Other-Directed, Lighthearted, Intellectual, and Whimsical Scale

PsycTESTS Citation:

Proyer, R. T. (2017). Other-Directed, Lighthearted, Intellectual, and Whimsical Scale [Database record]. Retrieved from PsycTESTS. doi: https://dx.doi.org/10.1037/t76994-000

Instrument Type: Inventory/Questionnaire

Test Format:

The items are rated on the following scale: (1) strongly disagree; (2) disagree; (3) slightly disagree; (4) neither agree nor disagree; (5) slightly agree; (6) agree; and (7) strongly agree.

Source:

Proyer, René T. (2017). A new structural model for the study of adult playfulness: Assessment and exploration of an understudied individual differences variable. Personality and Individual Differences, Vol 108, 113-122. doi: https://dx.doi.org/10.1016/j.paid.2016.12.011, © 2017 by Elsevier. Reproduced by Permission of Elsevier.

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OLIW

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Doutsch	English		
Deutsch	English		
Instruktion	Instruction		
Die folgenden Aussagen beziehen sich auf allgemeine Einschätzungen von alltagsbezogenen Verhaltensweisen oder Einstellungen. Es gibt keine richtigen oder falschen Antworten. Versuchen Sie bitte anhand der folgenden Aussagen Ihre üblichen Verhaltensweisen und Einstellungen so gut wie möglich zu beschreiben, indem Sie eine von sieben Antwortmöglichkeiten markieren	The following statements refer to your everyday actions or attitudes in general . There are no correct or false answers. Please try as much as possible to describe your habitual actions and attitudes by marking an X through one of the seven alternatives. Please use the following scale		
Antwortformat	Answer format		
 trifft überhaupt nicht zu trifft nicht zu trifft eher nicht zu trifft eher zu noch nicht zu trifft eher zu trifft eher zu trifft zu trifft völlig zu 	 strongly disagree disagree slightly disagree neither agree nor disagree slightly agree agree strongly agree 		
Items	Items		
1. Eine Diskussion ist letztlich nichts anderes als ein Spiel mit und ein Austausch von Ideen.	1. In the final account, a discussion is nothing other than playing with -and an exchange of ideas.		
2. Ich lebe ganz und gar nicht gerne einfach so "in den Tag hinein"; ich plane lieber langfristig im Voraus.	2. I do not live from day to day at all; I rather plan ahead long in advance.		
3. Ich kann meine Verspieltheit nutzen, um anderen Menschen Freude zu machen oder	3. I can use my playfulness to do something nice for other people, or to cheer them up.		
4 Ich schwimme gernegegen den Strom"	4. I like to swim "against the stream."		
5. Ich mag Aufgaben nicht, bei denen man lange herumprobieren und "knobeln" muss, bis man eine gute Lösung gefunden hat.	5. I do not like tasks where you have to try a few things out and have to puzzle something out, before arriving at a good solution		
6. Ich mache mir bei den meisten Dingen, die ich zu erledigen habe, wenig Sorgen, weil sich immer etwas ergeben wird.	6. I don't worry about most of the things that I have to do, because there will always be some kind of a solution.		
7. Auch als Erwachsene/r gefällt es mir			

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noch, andere auf lustige Art und Weise hereinzulegen; also anderen kleine, gutmütige Streiche zu spielen.	7. Also as an adult I still like to play good natured, funny tricks on others; to play small good-natured pranks on others.			
8. Ich habe den Ruf, etwas ungewöhnlich oder extravagant zu sein.	8. I have the reputation of being somewhat unusual or flamboyant.			
9. Wenn ich eine neue Idee weiter entwickeln möchte und darüber nachdenke, dann wähle ich dazu gerne einen spielerischen Zugang.	9. If I want to develop a new idea further and think about it, I like to do this a playful manner.			
10. Ich bin ein unbekümmerter Mensch.				
11. Ich habe enge Freunde, mit denen ich auch einfach nur mal herumalbern und blödeln kann.	10. I am a lighthearted person.11. I have close friends with whom I can just fool around und be silly.			
12. Da ich mich nicht gerne "in eine Schublade" packen lasse, mache ich immer wieder gerne auch impulsive Dinge.	12. Since I do not like being pigeonholed, I			
13. Bei Problemen, über die ich nachdenke, suche ich nach einem fertigen Schema zur Lösung und setze eher selten auf einen spielerischen Zugang zur Problemlösung.	do impulsive things from time to time. 13. When thinking about a problem, I look for a fixed scheme for the solution and only			
14. Viele Menschen nehmen ihren Alltag viel zu ernst; wenn etwas nicht klappt, muss man eben improvisieren.	rarely rely on a playful approach to solve th problem.			
man eben improvisieren. 15. Es lenkt mich nur von der Arbeit ab, wenn meine ArbeitskollegInnen	14. Many people take their lives too seriously; when things don't work you just have to improvise.			
Das bringt mir nichts und ich beteilige mich bei so etwas erst gar nicht.	15. It only distracts me from work if my colleagues at work are fooling around and want to involve me. There is no use in this			
16. Ich lasse mich im Allgemeinen nicht gerne einordnen und habe bei Vielem meinen eigenen Stil.	for me and I do not even participate in such things.			
17. Wenn ich unter Zeitdruck etwas Neues lernen muss, dann versuche ich, einen	16. I do not generally like to allow myself to be categorized and have my own style in many respects.			
finden - das hilft mir beim Lernen.	17. If I have to learn something new under			
18. Dinge einfach mal "auf sich zukommen lassen" ist oftmals die bessere Devise als lange zu grübeln.	time pressure, I try to find a playful approach to the topics—this helps me learning.			
19. Mit engen Freunden etwas nachspielen, das man gemeinsam erlebt hat (z.B. ein	18. "Wait and see" is often a better approach than spending much time pondering.			
lustiges Ereignis, an das man sich gerne erinnert), bereitet mir Freude	19. I enjoy re-enacting things with close			
20. Ich umgebe mich gerne mit	triends that we have experienced together (e.g., a funny incident that we like to remember).			

ungewöhnlichen Menschen oder Dingen.	20. I like to surround myself with unusual			
21. Wenn man eine konkrete Aufgabe lösen soll, dann hat verspielt sein keinen Platz.	people or objects.			
Das stört nur bei der Arbeit.	21.11 one has a concrete task to perform, there is no room for playfulness. This only			
22. Es kommt vor, dass ich etwas mache (sei es in der Arbeit oder in der Freizeit) und gar	detracts from the work.			
nicht so sehr an die möglichen Konsequenzen und alles, was dabei passieren kann, denke.	22. It happens sometimes (at work or in leisure time) that I do something and do not really think about the possible consequences and all the things that could be happening.			
23. Ich kann meine Gefühle für meine Partnerin/meinem Partner auf eine verspielte Art und Weise ausdrücken.	23. I can express my feelings towards my romantic partner in a playful way.			
24. Ich habe eine ungewöhnliche Angewohnheit oder ein nicht alltägliches Hobby.	24. I have an unusual habit or an uncommon hobby.			
25. Mir fällt immer etwas ein, was ich tun kann und es ist mir nie langweilig.	25. I can always think of something to do and I am never bored.			
26. Wenn ich es mir aussuchen kann, dann arbeite ich lieber etwas chaotisch und ungeplant, als alles genau bis ins kleinste Detail hin zu planen.	26. If I am free to choose, I prefer to work somewhat chaotic and unplanned than planning everything up to the smallest detail.			
27. Ich habe gar keine Freude an Gesellschaftsspielen (z.B. Karten- oder Würfelspiele) und daran, mich mit anderen Menschen spielerisch zu beschäftigen.	27. I do not at all enjoy parlor games (e.g., card games, or a games of dice) and engaging in a playful way with other people.			
28. Ein Spiel macht mir nur Freude, wenn die Regeln es zulassen, dass etwas Ausgefallenes, Unvorhersehbares, Ungewöhnliches, oder Überraschendes passieren kann (oder ich die Regeln so abändern darf!).	28. I enjoy a game only if the rules allow for something curious, unpredictable, unusual, or surprising to happen (or if I am allowed to change the rules in such a way that they can!).			
Auswertung	Scoring			
Other-directed (auf andere ausgerichtet): 3, 7,	11, 15R, 19, 23, 27R			
Lighthearted (leichtherzig): 2R, 6, 10, 14, 18, 22, 26				
Intellectual (intellektuell): 1, 5R, 9, 13R, 17, 2	1R, 25			
Whimsical (extravagant): 4, 8, 12, 16, 20, 24, 2	28			
R = reverse coded (muss umkodiert werden)				

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6.2 Appendix B: Information Sheet

Information Sheet

Title of project: The effects of object-play and creativity on playfulness

You are being invited to take part in the research the effects of object-play and creativity on playfulness. This project is being undertaken by Katerina Hruba for our major research project as part of the BSc (Hons) in Applied Psychology, IADT.

Before you decide whether you wish to take part, it is important for you to understand why this research is being done and what it will involve. Please take time to read this information carefully and discuss it with someone you trust. If there is anything that is unclear or if you would like more information please ask, our contact details are at the end of this information sheet. Thank you for reading this.

What is the purpose of the project?

Adult playfulness is a neglected field of research in psychology, recently, due to the positive psychology movement it is being more researched. Many studies suggest and support that there is a connection between adult playfulness and creativity, however the is no consensus on what the nature of that connection is. Similar body of research is appearing in the context of object-play and creativity. The research suggests that play is often used interchangeably in research with adult playfulness, therefore, this study aims to find out the causal relationship between the three variables.

Who is/Why are you being invited to take part?

You are being invited to participate in this study because you have been identified as an adult (over the age of 18) student of a creative college.

What is involved?

If you choose to participate, you will be asked demographic questions about your age and gender, followed by a questionnaire and a test. The first questionnaire asks about your adult playfulness, and the test assesses your creativity. This part of the study will take approximately 15 minutes. Afterwards you will be given a toy and asked to play with it in whatever way you choose fit once a day for a week. You will be asked to return after a week and complete the two questionnaires again. This part of the study will take again 15 minutes.

Do I have to take part?

You are free to decide whether you wish to take part or not. If you do decide to take part, you will be asked to sign a consent form that lets us know you have read this information sheet and understand what is involved in the research. You are free to withdraw from this study at any time and without giving reasons.

If you choose to either take part or not take part in the study, it will have no impact on your marks, assessments or future studies.

What are the disadvantages and risks (if any) of taking part?

This study does not discuss any sensitive topics and does not include any risks. However, you may choose to not answer any questions or take part in any section of the study if you do not wish to.

What are the possible benefits of taking part?

A possible benefit of this study is the option to keep the given toy after the completion of the study. Otherwise, there is no promise the study will help you, but the information we get from the study will help to increase the understanding of adult playfulness.

How will my information be used?

Your responses to the questionnaire and the test will be combined with all other participants data and statistically analysed. No individual's data will be identifiable in the final report. The results of this analysis will be reported in the thesis for the BSc (Hons) in Applied Psychology in the Dun Laoghaire Institute of Art, Design & Technology. This can be requested through the library at IADT, or by emailing the researcher or supervisor at <u>n00192737@iadt.ie</u> and <u>Hannah.Barton@iadt.ie</u>. This study may also be published in an academic journal article and may be written about for blog posts or media articles and these can be requested from the researcher.

How will my data be protected?

If you choose to participate your confidentiality will be safeguarded during and after the study by coded data, being saved on a password protected computer. The researcher will adhere to GDPR regulations. The data provided will be anonymised by the use of codes that will not contain any identifiable personal information with which the person could potentially be identified in any way.

Under the EU General Data Protection Regulation (GDPR) the legal basis for collecting data for scholarly research is that of public interest. The regulations regarding the protection of your data will be followed. Only data which is needed for analysis will be collected. By giving your consent to take part in the study you are consenting to the use of your data as detailed in this information sheet.

The data will be retained by the researcher for at least one year, and may be retained for up to 7 years if the results of the study are published in certain capacities (e.g. in a journal article). There is also a possibility that the fully anonymised dataset may be submitted to a journal and made available to other researchers and academics worldwide for verification purposes, but if this occurs it will be ensured that you are not identifiable from the data.

As the supervisor on this project, I, Hannah Barton, am responsible for ensuring that all datasets will be stored in accordance with GDPR regulations and those which are not submitted to a journal will be fully deleted on or before 2030.

Katerina Hruba, Hannah Barton, Grainne Kirwan, and Christine Horn will have access to the data.

The data will be stored in a locked filing cabinet or on a password protected computer. In the case of a data breach the data protection officer in IADT will be informed immediately. The level of identifiability of the data is coded.

The data will be securely disposed of for the longer-term arrangements.

You will find contact information for IADT's Data Protection Officer, Mr Bernard Mullarkey, and more information on your rights concerning your data at <u>https://iadt.ie/about/your-rights-entitlements/gdpr/</u>

Who has reviewed the study?

This study has been approved by the IADT Psychology Ethics Committee.

What if you have any questions or there is a problem?

If you have a concern about any aspect of this study, you may wish to speak to the researcher(s) who will do their best to answer your questions. You should contact Katerina Hruba, <u>N00192737@iadt.ie</u> or their supervisor Hannah Barton, +353 1 214 4756, <u>Hannah.Barton@iadt.ie</u>

Thank you

Thank you for taking the time to read the information sheet.

Date 12.12.2022

6.3 Appendix C: Consent Form

CONSENT FORM

Title of Project: The effects of creativity and object-play on adult playfulness Name of Researcher/s: Katerina Hruba

Please tick box

- 1 I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.
- 2 I understand that my participation is voluntary and that I am free to withdraw at any time. $\hfill \Box$
- 3 I understand that data collected about me during this study will not be identifiable when the research is published.
- 4 I am over 18
- 5 I agree to take part in this study.

Date

Signature

Researcher

Date

Signature

6.4 Appendix D: Participant Code

PARTICIPANT CODE AND DEMOGRAPHIC INFORMATION FORM

- 1. Please provide us with an anonymised code which we can use to identify your data if you later wish to have it removed from our dataset. Please do so by answering the following two questions
 - What are the second letters of your first and last name? (For example, if your name is Jane Smith, these letters would be 'AM')
 - What are the last three digits of your telephone number?
- 2. Gender: I identify as:
 - 0
 - o I prefer not to say
- 3. My pronouns are:
 - 0
 - o I prefer not to say
- 4. Age:
 - o Under 18 years
 - \circ 18-24 years
 - $\circ \quad \text{25-34 years} \quad$
 - \circ 35-44 years
 - o 45-54 years
 - o 55-64 years
 - \circ 65-74 years
 - $\circ \quad \textbf{75 years or older}$
 - o I prefer not to say
- 5. My field of study:
 - Applied Psychology
 - \circ Other

6.5 Appendix E: Debriefing Information Form

DEBRIEFING INFORMATION FORM

Title of Project: The effects of object-play and creativity on adult playfulness **Name of Researcher/s:** Katerina Hruba

Thank you very much for taking part in this research study.

This study is designed to investigate whether playing with a toy once a day for over a week will have any effects on adult playfulness. It is also trying to investigate how does creativity play a role in adult playfulness. It aims to find out whether there is a difference between people with higher creativity or lower creativity on their playfulness and whether there is a difference between those two groups on the effects of object-play on adult playfulness.

Withdrawal information

If you have any questions about this study, or if you would like to withdraw your data from the study, please contact the researcher or supervisor at <u>N0019273@iadt.ie</u> and <u>Hannah.Barton@iadt.ie</u>. In your email let them know your unique ID code created by second letters of your name and last three digits of our phone number. If you submit a request for data removal, all data collected from you will be securely deleted. You will be able to remove your data from the study until 20/01/2023 when the data will be combined and analysed. Data removal will not be possible after that date. Please keep a copy of this information in case you wish to remove your data after leaving this screen.

Data protection

Your data will be treated according to GDPR regulations. You will find contact information for IADT's Data Protection Officer, Mr Bernard Mullarkey, and more information on your rights concerning your data at https://iadt.ie/about/your-rights-entitlements/gdpr/

Support resources

If you have been affected by the content of this study in any way, the organisations below may be of assistance.

Crisis text line – Anonymous text support service, in your text message, text MU to number 50808. Trained volunteers are available 24/7.

Aware – Anonymous call support service available from 10am to 10pm on number 1800804848

Samaritans- Anonymous free call support service available 24/7 on number 116 123, or email jo@samaritans.ie

Thank you again for taking the time to participate in this research.

If you have any questions about this study, please contact the researcher or supervisor at <u>N0019273@iadt.ie</u> and <u>Hannah.Barton@iadt.ie</u>.

6.6 Appendix F: Confirmation of Consent for Data Use

CONFIRMATION OF CONSENT FOR DATA USE

- 1. Having completed the questionnaire:
 - \circ ~ I consent to the researchers using my answers for their research
 - I wish to have my answers removed from the research

6.7 Appendix G: Cronbach's Reliability for OLIW

Reliability StatisticsCronbach's AlphaN of Items0.86928

6.7 Appendix H: Assumptions Tests

Table 7

Box's Test of Equality of Covariance Matrices

Box's M	F	df1	df2	Ρ
14.394	1.482	9	25407.987	0.148

Table 8

Levene's Test of Equality of Error Variances

		Levene's Statistic	df1	df2	Р
Pre-test	Based on	0.218	3	50	0.884
	Mean				
Post-test	Based on	1.347	3	50	0.844
	Mean				

Table 9

Tests of Normality- Shapiro-Wilk

		Shapiro-Wilk				
Interventio						
n	Intervention type	Statistic	df	Р		
post-test	Object-Play	.994	28	1.000		
	Reflection	.945	26	.179		
Pre-test	Object-Play	.977	28	.778		
	Reflection	.918	26	.040		

6.8 Appendix I: Three-way ANOVA

Table 10

Test of within-subjects' contrasts

Measure: AdultPlayfulness									
		Type III							
		Sum of		Mean			Partial Eta	Noncent.	Observed
Source	-	Squares	df	Square	F	Р	Squared	Parameter	Power
Intervention	Sphericity Assumed	1084.047	1	1084.047	9.409	.003	.158	9.409	.853
	Greenhouse-Geisser	1084.047	1.000	1084.047	9.409	.003	.158	9.409	.853
	Huynh-Feldt	1084.047	1.000	1084.047	9.409	.003	.158	9.409	.853
	Lower-bound	1084.047	1.000	1084.047	9.409	.003	.158	9.409	.853
Intervention * Creativity	Sphericity Assumed	87.684	1	87.684	.761	.387	.015	.761	.137
	Greenhouse-Geisser	87.684	1.000	87.684	.761	.387	.015	.761	.137
	Huynh-Feldt	87.684	1.000	87.684	.761	.387	.015	.761	.137
	Lower-bound	87.684	1.000	87.684	.761	.387	.015	.761	.137
Intervention *	Sphericity Assumed	339.512	1	339.512	2.947	.092	.056	2.947	.391
Interventiontype	Greenhouse-Geisser	339.512	1.000	339.512	2.947	.092	.056	2.947	.391
	Huynh-Feldt	339.512	1.000	339.512	2.947	.092	.056	2.947	.391
	Lower-bound	339.512	1.000	339.512	2.947	.092	.056	2.947	.391
Intervention * Creativity *	Sphericity Assumed	9.923	1	9.923	.086	.770	.002	.086	.060
Interventiontype	Greenhouse-Geisser	9.923	1.000	9.923	.086	.770	.002	.086	.060
	Huynh-Feldt	9.923	1.000	9.923	.086	.770	.002	.086	.060
	Lower-bound	9.923	1.000	9.923	.086	.770	.002	.086	.060
Error(Intervention)	Sphericity Assumed	5760.883	50	115.218					
	Greenhouse-Geisser	5760.883	50.00	115.218					
			0						
	Huynh-Feldt	5760.883	50.00	115.218					
			0						
	Lower-bound	5760.883	50.00	115.218					
			0						
a. Computed using alpha = .0)5								

Tests of Within-Subjects Effects

Table 11

Measure: Adult Playfulness

Test of within-subjects' contrasts

1

Tests of Within-Subjects Contrasts

		Type III Sum of							
Source	Intervention	Squares	df	Mean Square	F	Ρ	Partial Eta Squared	Noncent. Parameter	Observed Power
Intervention	Linear	1084.047	1	1084.047	9.409	.003	.158	9.409	.853
Intervention * Creativity	Linear	87.684	1	87.684	.761	.387	.015	.761	.137
Intervention * Intervention type	Linear	339.512	1	339.512	2.947	.092	.056	2.947	.391
Intervention * Creativity *	Linear	9.923	1	9.923	.086	.770	.002	.086	.060
Intervention type									
Error(Intervention)	Linear	5760.883	50	115.218					

6.9 Appendix J : Ethics Application

IADT Psychology Ethics Committee (PEC) Application Form 2022-2023

Instructions:

- 1. Please read all sections carefully, include all of the information relevant to your project, and include all necessary appendices.
- 2. All students must complete Sections 1, 2, 3, and 4. You will also need to complete at least one other section, depending on the type of research that you plan to do.
- 3. Email the completed form to your supervisor for approval. They will then complete Section 0 below.
- 4. Your supervisor will then forward the application to the ethics committee.
- 5. If your application is under the Red Route, then you may also be required to submit four printed copies of your application (including all appendices). You will be advised closer to the deadline if this is necessary or not.
- 6. If your study changes from how you have described it in this form then you will need to reapply for approval from the PEC. The PEC does not guarantee that a revised project will be approved, even if the original project was approved.
- 7. All communication between students and the PEC will occur via the student's project supervisor.
- 8. The PEC will consider all of the information provided in the form when making their decision. Incomplete forms (including forms which do not include all of the necessary Appendices) will be rejected.
- 9. If the PEC's decision is that a revised application must be made then they will provide a list of required changes which are necessary to ensure participant wellbeing. Even if all of these are followed, the PEC makes no commitment to approve a revised application.
- 10. It is highly recommended that 'Red Route' students continue to formulate ideas for projects which fit the criteria for 'Green Route' and 'Amber Route' submissions until they are advised that their application has been approved. This is to ensure that the student can still complete the module, even if their 'Red Route' project does not receive approval from the PEC.
- 11. There is an obligation on the researcher to bring to the attention of the PEC any issues with ethical implications not clearly covered by the checklist in Section 6 of this form.
- 12. 'Signatures' may be typed, scanned in, or digitally signed.

Section 0: For Completion by the Supervisor

I confirm that this application to the PEC by	(student name) accurately
reflects all of the ethical implications in the project.	
Application type (tick all that apply for mixed methods):	: Green Route Amber Route Red Route
Signed	Date:

Section 1: Project Information

Student Name: Katerina Hruba Student Email Address: N00192737@iadt.ie Supervisor Name: Hannah Barton Working Project Title: Exploring the effects of creativity and object-play on adult playfulness Main Variables Being Investigated: Object-play, playfulness exercise by Proyer et al., (2020) and creativity as defined by Power (2011)

Section 2: External Agencies

Does your project involve recruitment from any external agency (e.g. a school, sports club, medical centre, voluntary organisation, or any other organisation outside of the IADT)?	Yes*	No √
* You must include a letter from a senior manager of each organisation sta	ting that yo	u have
approval to collect data within that organisation. Include copies of each of	these letter	s in the
Appendices to your application. If the organisation has its own ethical revie	ew board (w	hich is very
common in some settings, such as hospitals), then you are also required to	get ethical	approval
from that board prior to starting data collection, and to submit notice of the	is approval	to your
supervisor so that it can be forwarded on to the ethics committee. Some o	nline forum	s also
require permission to post requests for participants – make sure to check t	he relevant	
forum/organisation's code of conduct or terms and conditions. You do not	need to incl	ude
approval letters if you are conducting recruitment using mainstream social	media rout	es (e.g. <i>,</i>
Twitter, Instagram, Facebook, Snapchat, TikTok) to your own followers, an	d/or snowba	all
sampling/word of mouth recruitment.		

Route Type	Methodology	Tick here
Green Route	Theoretical paper / systematic literature review / Rapid Structured	
(no direct	Literature Review (RSLR)	
contact with	Novel analysis of an existing dataset gathered by another researcher	
participants	or group which you are certain has abided by appropriate ethical	
required, and	procedures for the relevant discipline	
no data is	Observation of participants in a public place in which they could	
collected/recor	reasonably be expected to be observed by strangers or in an online	
ded which could	space which does not require users to log in to access.	
identify	Content analysis of material which is publicly available and does not	
participants)	require users to log in to access content.	
	Other method without direct contact with participants **	
Amber Route	Requirements gathering for and/or user testing of a prototype which	
(direct contact	is highly unlikely to cause any harm or distress to participants and	
with	which does not aim to collect data from a potentially vulnerable	
participants, but	group	
no additional	An experiment which is highly unlikely to cause any harm or distress	
ethical	to participants and which does not aim to collect data from a	\checkmark
considerations	potentially vulnerable group	
beyond the	A survey/questionnaire design which is highly unlikely to cause any	
minimum	harm or distress to participants and which does not aim to collect	
requirements)	data from a potentially vulnerable group	
	An observational study which is highly unlikely to cause any harm or	
	distress to participants and which does not aim to collect data from	
	a potentially vulnerable group	

Section 3: Project Methodology – Please tick which type of project you are seeking approval from the PEC for. If your project involves mixed methods, then tick <u>all</u> which apply.

	Content analysis research which is highly unlikely to cause any harm	
	or distress to participants and which does not aim to collect data	
	from a potentially vulnerable group	
	Interviews and/or focus groups which are highly unlikely to cause	
	any harm or distress to participants and which do not aim to collect	
	data from a notentially vulnerable group	
	Other method which is highly unlikely to cause any harm or distress	
	to participants and which does not aim to collect data from a	
	not opticipants and which does not aim to collect data from a	
Ded Devite		
Red Route	Requirements gathering for and/or user testing of a prototype which	
(direct contact	may cause harm or distress to participants and/or which involves	
with	collecting data from any potentially vulnerable group	
participants,	An experiment which may cause harm or distress to participants	
including one or	and/or which involves collecting data from any potentially	
more project	vulnerable group	
aspects which	A survey/questionnaire design which may cause harm or distress to	
require special	participants and/or which involves collecting data from any	
ethical	potentially vulnerable group	
consideration)	An observational study which may cause harm or distress to	
	participants and/or which involves collecting data from any	
	potentially vulnerable group	
	Content analysis research which may cause harm or distress to	
	participants and/or which involves collecting data from any	
	potentially vulnerable group	
	Interviews and/or focus groups which may cause harm or distress to	
	narticipants and/or which involves collecting data from any	
	potentially vulnerable group	
	Any project which includes use of any illegal materials or substances	-
	as part of the materials for the study regardless of methodology	
	amployed	
	Any project which includes use of any dangerous materials or	
	wheteness as part of the meterials for the study, regardless of	
	substances as part of the materials for the study, regardless of	
	methodology employed.	
	Any project employing ethnographic or autoethnographic	
	methodologies.	
	Other method which may cause harm or distress to participants	
	and/or which involves collecting data from any potentially	
	vulnerable group **	
** If you are using	g a methodology not listed above then provide a short description (fewe	er than
100 words) here:		
•		

Section 4: Checklist of Attached Appendices and Other Completed Sections

Applicable	Section / Item	I have attached	I have checked
Project Ethics		this	with my
Route Colour		item/completed	supervisor and
Guide		this section	we have agreed
			that this

					item/section is not relevant to my project	
			1	Section 1	\checkmark	
			2	Section 2	\checkmark	
			3	Section 3	\checkmark	
			4	Section 4	\checkmark	
			5	Letters of permission from any external agencies to be used for data collection	N/A	
			6	Statement of approval from ethical review boards in external agencies	N/A	
		7	Section 5 (Green Route Projects only)	N/A		
		8	Section 6 (Amber and Red Route Projects only)	\checkmark		
		9	Section 7 (Amber Route Projects only)	\checkmark		
		10	Section 8 (Red Route Projects only)			
		11	Section 9 (Red Route Projects only)			
		12	Evidence of why you need to complete a Red Route Project (see note in Section 8)			
		13	Project Information Sheet (Red Route Projects only)			
		14	Project Consent Form (Red Route Projects only)			
		15	Project Demographic Questionnaire (Red Route Projects only)			
			16	All Other Questionnaires and Data Collection Materials (Red Route Projects only)		
			17	Project Debrief (Red Route Projects only)		

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Section 5: Declaration of a Green Route project

I hereby declare that [all of / this aspect of (delete as appropriate)] my project involves no direct interaction between me and any research participants, and that having checked with my supervisor, that I do not need to seek informed consent from those whose data I use in my research. In addition, I will ensure that all data which I do gather is held in a manner which is compliant with GDPR, and will be deleted once it is no longer required (and definitely within 6 years of collection). At all times my study will be conducted in adherence to the ethical policies of the Psychological Society of Ireland and the British Psychological Society. Student Signature: ______ Date: _______