

PSY 403

An Application of FEATS scoring system in Draw-A Person-in-the-Rain (DAPR):

Distinguishing Depression, Anxiety, and Stress by Projective Drawing

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Abstract

The current study is inspired by Linda Gantt's Formal Elements Art Therapy Scale (FEATS), in which Gantt compared the drawing's artistic characteristics with properties in DSM-III (Gantt, 2001). The current study is to investigate whether depression, anxiety, and stress have impact on Draw-A-Person-in-the-Rain (DAPR) projective drawing's content and art elements, and the similarities and difference in the 14 items of FEATS scoring of the three factors. This study demonstrated a mixed research design with experimental procedure as survey, brief interview and observation for data collection. Thematic analysis was used as the interview encoding. 61 participants, with 18 males and 43 females, aged between 18 to 29 were recruited. An integrated model is created to address the issue of identifying Depression, Anxiety, and Stress level in DAPR using implied energy, color fit, and prominence of color in FEATS scale.

Key words: Projective Drawing, DASS, FEATS, Art therapy

An Application of FEATS scoring system in Draw-A Person-in-the-Rain (DAPR):

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Chapter 1: Introduction

1.1 Background of the study

“To see a world in a grain of sand and a heaven in a wildflower” (Blake & Angelo, 1968)

This has brought up the idea of understanding a bigger event in a small object. Likewise, projective drawing test gave us the opportunity of viewing an individual’s unconsciousness by a raindrop, a person, an animal and so on.

Projective drawing test. Projective drawing test, as known as expressive or graphical projective tests, was first developed by Florence Goodenough in 1926. She created this test to test for the intelligence of the children (Goodenough, 1926; Harris, 1965). Then, several scoring systems, such as Draw-a-Person: QSS (quantitative scoring system) and Draw-a-Person: SPED (Screening Procedure for Emotional Disturbance) were created as to evaluate the children’s intelligence (Naglieri, McNeish, & Bardos, 1991; Prewett, Bardos, & Naglieri, 1988).

Apart from children’s intelligence, tests as Buck's House-Tree-Person and Machover's Figure Drawing techniques have been developed to test for the mental status of a person (Buck & Warren, 1992; Machover, 1949). The projective drawing test were blooming since then, starting from Draw-A-Person-in-the-Rain, Schwartz's Draw-An-Animal approach,

Draw-A-Family procedure, Harrower's Unpleasant Concept Test, to Kinget's Drawing Completion Test (Deren, 1975; Hammer, 1968; Harrower, 1950; Kinget, 1952; Schwartz & Rosenberg, 1955).

Draw-A-Person-in-the-Rain (DAPR). DAPR is developed from Machover's Figure Drawing techniques and modified from “lady walking in the rain” (Siskind, 1991). It meant to set up an environment of projecting symbolic images of the drawer in a stressful situation (Hammer, 1958). However, only a limited amount of scoring systems have been done on DAPR, two unpublished works from Heidi Lack in 1996 and Carol P Krom in 2002 are the more mature system (Lack, 1996; Krom, 2002; Willis, Joy, & Kaiser, 2010).

Scoring systems in Projective Drawing test. Although many projective drawings have been established, a short of standardized scoring system were created. Ogdon (1967) tried to construct a scaling to rate the projective drawings named as Multilevel Analysis of Projective Drawing (MAPD). However, this piece of study mainly focuses on the action of the drawer himself/herself than the picture itself.

Then in 1981 (Blain, Bergner, Lewis, & Goldstein, 1981), a 6-item test of house-tree-person drawing have been developed to identify physically abused children. However, it used the method of item-counting to calculate the scoring of the drawings, therefore, some characters have been missed out as color used, overall details, space used etc.

In 2001 (Gantt, 2001; Gantt & Tabone, 2012), Gantt first developed a scale that compared

between the drawing's artistic characteristics with properties in DSM-III, called Formal Elements Art Therapy Scale (FEATS). To make the best use of the scale, A-Person-Picking-An-Apple-from-the-Tree (PPAT) which metaphorically presented one's problem-solving skills was designed by Linda Gantt.

DAPR and PPAT. There are some similarities in between the two projective drawings as DAPR and PPAT, which makes them comparable and some items from FEATS could be modified to fit the setting of DAPR. First, the main drawing themes of the 2 drawings are closely related: rain and person were the main theme of DAPR; while apple tree and person were the main theme of PPAT. Second, the drawing objectives are pretty similar: in DAPR, was to find out the drawer's coping strategies and environmental stress; in PPAT, was to find out the person's problem-solving skills and the aims of the drawer.

1.2 Research Objectives

The purpose of this project is to apply and modified the Formal Elements Art Therapy Scale (FEATS) in a projective drawing test as Draw-A-Person-in-the-Rain (DAPR). Since the DAPR did not have a standardized scoring system in understanding the drawing components and its correlation to one's emotionality, and FEATS first demonstrated an objective and standardized scoring system for a projective drawing as "A-Person-Picking-an-Apple-from-the-Tree" (PPAT), a new combined method with scoring of objective (computed scoring and content tally sheet from FEATS) and subjective (interview encoding from DAPR) test is able

to perform.

Besides, the differences and similarities, and presence and absences of features in depression, anxiety, and stress would likely to be presented in the drawing, so the distinguishability of depression, anxiety, and stress would also like to be discovered.

The main objective would be to validate an assessment tool as DAPR and standardized the test with modified FAETS ratings. The second main objective would be to distinguish the characteristics of depression, anxiety, and stress in DAPR using the FEATS ratings.

1.3 Research Significance

The drawings would be a useful tool to break down the communication barrier between the client and therapist. The clients could openly express their views on the sketch paper, and to reflect their feelings and perceptions besides of questionnaire. The therapist may get insight into the clients' experience through understanding some of the drawing components in the picture.

The outcomes, which are going to be found by this research study, are expected to validate a standardized and more objective scoring system for DAPR by applying the FEATS scoring system. It also provides the distinguishing with the elements of depression, anxiety, and stress in a projective drawing as DAPR.

Chapter 2: Literature Review and Conceptual Framework

2.1.1 Research done on Draw-A-Person-in-the-Rain (DAPR)

The theoretical basis of the DAPR is from a Neo-psychoanalyst, Erich Fromm, who used symbolized languages to analyze an individual's inner experience and feelings. He divided the symbols into convention, sporadic, and universal (Fromm, 1952). For drawing, the symbol of sporadic is related to personal experience and the symbol of universal is owned by all human nature. With the study of "The legend of Fuxi", from Traditional Chinese Culture and "The Ark", from Western Culture in the Bible, researcher found that rain as a symbol of stress has a cross-cultural universality (Chan, 2008). In this research, the use of universal symbol would be used as a cue to stimulate the participants to express their sporadic symbol on the picture.

Importance of DAPR. DAPR was a commonly used clinical tool testing for an individual's attitude toward tolerance, pressure and frustration, defense mechanisms, and level of anxiety (Hammer, 1958). This tool could assist the therapist for identifying and determining whether the client has sufficient coping resources to begin an advancing level of treatment without the fear of relapse (Willis, Joy, & Kaiser, 2010).

Scoring system. Lack (1996) first developed a more objective scoring for DAPR. There were 3 items in his scoring as stress, resources, and coping strategies. The 3 items are of item counting only. Then, Krom (2002) developed a scoring system for DAPR by an equation of:

Coping Balance index = coping resources – Stress

While the coping balance index is the final scoring, the other two items as coping resources and stress are of objects that could find in the drawing. For coping resources, those items were about the methods or supports that person used to fight against the rain, for instance, a hat, a coat, shoes or boots, an umbrella, a tree providing a shelter, a roof or awning providing a shelter. A research conducted in 2010 found that a smile could also be used to fight against the rain as a coping resource (Krom; 2002; Willis, Joy, & Kaiser, 2010). For stress, those are the items hypothetically measure stress and included rain itself, for example, heavy rain, extensive raindrop, diagonal rain, rain focused on the human figure completely, clouds and puddles (Krom; 2002; Willis, Joy, & Kaiser, 2010). There are in total of 16 items in coping resources and stress respectively.

DAPR scoring in other researches. Research other than Krom and Lack only giving a vague idea of scoring, usually divided by 3 groups: low, medium, and high with a scoring criterion of presence or absence of shielding, and the amount of rain (Carney, 1992; Kravits, McAllister-Black, Grant, & Kirk, 2010; Verinis, Lichtenberg, & Henrich, 1974). However, unlike Krom's scoring, the aforementioned researches did not have standardized items for scoring, the adequate protection and rain amount is observed by subjectively.

Limitation of Krom's scoring. There are mainly 2 aspects that Krom's scoring did not deal with. First, item counting, certain problem might occur due to counting item only. The

first issue is the missing of items, as stated before, the items created by Lack and Krom are by hypothesizing the relationship between the item and stress or resource. Therefore, some items might be missed out, for example, before the study done in 2010, smile was not counted as a coping resource, and puddles were not counted as stress (Willis, Joy, & Kaiser, 2010). The second one is limited items would be counted in both coping resources and stress, only 16 items have been created, but other items other than that 16 could not be counted.

Second, in Willis and his colleagues' research (2010), they collected the finding from DAPR and scored it with Krom's scoring, also, a standardized self-report tests as Coping Resource Inventory for Stress (CRIS) (Matheny et al., 1993) was used as a comparison with the DAPR scoring. The result showed that only Self-Directedness showed a significant correlation between the 6 variables in CRIS. This indicated the Krom's scoring system has a low criterion validity.

Thereby, the 2 developed scoring is not adequate to represent the content of DAPR dutifully, and there is a need to build up a valid and reliable scoring system.

2.1.2 Current tools

Depression. Plenty of projective drawing test elements is used to test for participant's depression tendency, but the test would usually combine with other elements and depression would not be the main objective of that drawing as the person and tree in House-Tree-Person (H-T-P) could indicated certain levels of one's depression (Burns, 2014). For example, the

person's face is painted black or the leaves of the tree turn downward, both demonstrated low mental energy in the person. The following test set up several scoring of depression instead of a single object (Stoddard, 2003).

The Fairy Tale Test (FTT). FTT is as a diagnostical tool to detect potential psychopathological signs, like depression, in children ages 6 to 12 (Coulacoglou & Saklofske, 2017). Of the variables, in Emotional states, Depressive Feeling (D) is the most related factor. Other than that, variables as Desire to Help (DH), Need to Give and/or Receive Affection (NAFCT), Need for Approval (NAPRO), Need for Protection (NPRO), Self-Esteem (SE) and Repetitive Responses (REP) is also related to depression symptoms.

The Thematic Apperception Test (TAT). TAT is a projective test involving ambiguous pictures of people, the clients' respond would reveal their underlying motives, concerns, and the way they see the social world (Murray, 1943). The presence of depression theme would act as a depressive indicator (Westen, Lohr, Silk, Gold, & Kerber, 1990).

A-Person-Picking-An-Apple-from-the-Tree (PPAT). PPAT is originated from FEATS scoring system, in a different scale, depression patient would have a score compared with other psychopathological patients as Bipolar Disorder or Mania, Schizophrenia, Dementia, and a normal group. Depression patients would have a lower score in Prominence of Color (less color used), Color Fit (dark color used), implied energy, Space (constructed use of space), Realism, Details (Lack of detail), Person (Gantt, 2001; Gantt & Anderson, 2009;

Gantt & Tabone, 2012).

Anxiety. A handful of projective tests is related to anxiety. However, the anxiety is in a different form, for example, a number of researches are about the test anxiety (Cox & Sarason, 1954; Engle & Suppes, 1970; Rábíń, 2013). In the present study, general anxiety would be the main focus.

Human Figure Drawing. Human Figure Drawing is included Draw-A-Person (DAP), House-Tree-Person test (H-T-P), and the Kinetic Family Drawing test (KFD), as it is named, it was a projective drawing test consist of different persons. Anxiety would be presented in the drawing in the “person” in the drawing, by the too detailed eyes, imbalanced shoulder, hands placed inside the pocket, character hanging or falling, shaded parts of the body etc. Also, many colors, abundant details, and expansive use of space would be used (Becker et al., 1995; Handler & Reyher, 1965; Nolan, Dai, & Stanley, 1995).

Sentence Completion Test (SCT). The SCT comprises 40 incomplete sentences usually with only 1 to 2 words and the subject is asked to complete the sentence. SCT is effective in assisting general distress or ego development, but it cannot act as useful as other projective tests for an assessment tool of anxiety (Lack & Thomason, 2013).

Stress. In stress, the mostly used projective test is still Draw-A-Person-in-the-Rain (DAPR), no other projective can fully replace DAPR in testing stress.

Draw-A-Person-in-the-Rain (DAPR). Stress would mainly appear as swirling or

looping lines in the drawings because when a person experiences extensive stress, repetitive lines and pattern as circles would appear in the drawing more (Yule, 2001).

2.1.3 Self-report test and projective test

The self-report test is using measures like survey, questionnaire and participants would respond to it by themselves only (Jupp, 2006). Although it has been considered as a highly reliable test, it has a validity issue. When the test intention and score computation are easy to guess, the fakability of the test could be high (Martin, Bowen, & Hunt, 2002; Viswesvaran & Ones, 1999). The research done in 2007 found that the faking in semi-projective measure was smaller than that in self-report measure (Ziegler, Schmidt-Atzert, Buhner, & Krumm, 2007). However, faking can be detected in self-report by effect size and cut-off scores, while it is harder to detect faking in a projective test (Bowen, Martin, & Hunt, 2002).

2.2 Conceptual Framework

Based on the aforementioned pieces of literature, a conceptual framework would be created as shown below. As stated before, depression would most likely to be related with color (Prominence of Color, Color Fit), details (Details of Objects & Environment, Person), implied energy, and space, in which the level of depression is higher, the variables mentioned would be decreased. While anxiety would most likely to be related with Prominence of Color, Color Fit, Realism, Implied Energy and Person, in which when the level of anxiety is higher, the variables mentioned would be decreased. In stress, it would be related to Prominence of

Color, implied energy, and Line Quality, in which when the level stress is higher, the variables mentioned would be increased, except line quality which would be decreased when the stress level is higher.

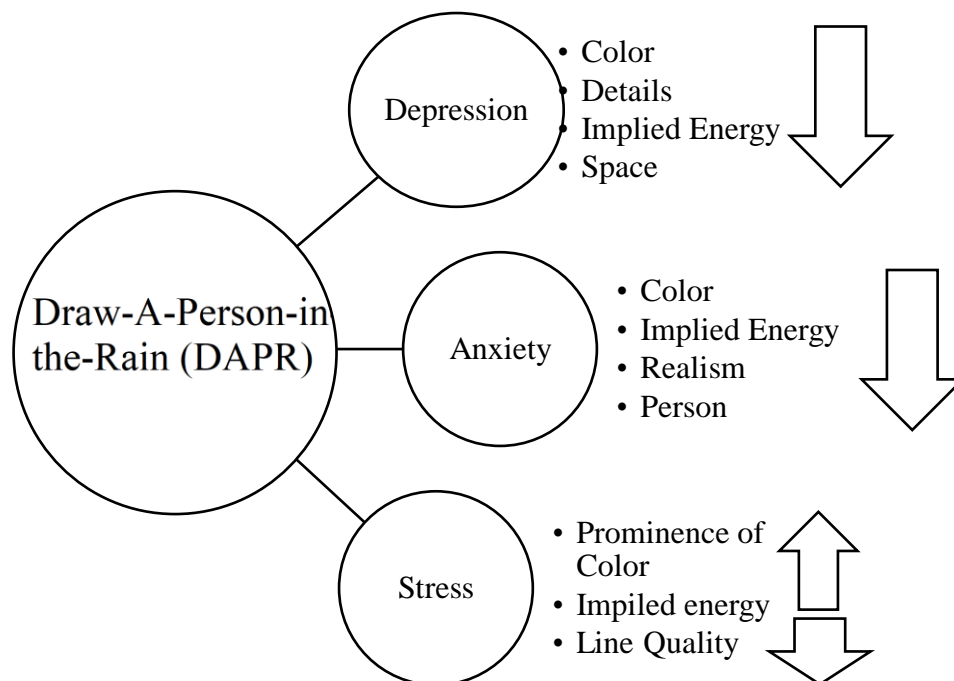


Figure 1. Summary of items related to depression, anxiety, and stress

2.2.1 Research gap

There are mainly two types of gaps in the study, first is of instrumental-wise, second is of validation. In FEATS, the researcher compared clinically diagnosed patients and non-patient, while the middle group (not as clinically diagnosed, but higher than average) of participants were missing. Since FEATS collected the extreme cases as psychopathological and normal participant, possibly the participants with relatively high psychopathological tendencies are being lost. In addition, in DAPR scoring, the researcher only used item-counting as for the calculation. Using item-counting only, leads to a low consistency of

coping balance compare to self-report.

Therefore, in the present study, in use of most data, the participants would not be collected with groups, but using the values of the variables. Also, by applying the FEATS scale, both interval and can dichotomous data be collected.

As Erich Fromm hypothesized (Fromm, 1952), the present study may able to find the universal symbol and sporadic symbol of the participants. Besides, the present study is used to validate the presence of depression, anxiety, and stress in the DAPR projective drawing.

2.2.2 Variables

Independent variables. The independent variables of the present study would be the levels of depression, anxiety, stress classified by the Depression Anxiety Stress Scale (DASS-21). The variable would be as scale data since the score of DASS-21 would be calculated.

Dependent variables. The dependent variables would be the 14 items of FEATS scoring system as Prominence of Color, Color Fit, Implied Energy, Space, Integration, Logic, Realism, Coping Strategies, Developmental Level, Details of Objects & Environment, Line Quality, Person, Rotation, and Perseveration. The variable would be in interval data as the scoring is as 0 to 5. Each item would be calculated using the mean of the 3 raters rating.

2.2.3 Research questions

First, what drawing components (i.e. FEATS ratings) did the depression, anxiety, and stress affect? Second, how could depression, anxiety, and stress be indicated in Draw-A-

Person-in-the-Rain by FEATS scoring?

2.2.4 Hypothesis

According to the aforementioned works of literature, two hypothesizes have been drawn, first, as stated in the conceptual framework, depression would predict drawing components as such, the decrease in prominence of color, color fit, details of objects & environment, person, implied energy, and space; anxiety would predict a decrease in prominence of color, color fit, realism, implied energy and person; and stress would predict an increase in prominence of color and implied energy, while having a decrease in line quality. Second, DAS would have a common item as implied energy which stress would predict positively while depression and anxiety would predict negatively. The differentiation between depression and anxiety would be the prominence of color and color fit which depression would have a larger impact (more negative) than that of anxiety.

Chapter 3: Methodology

3.1 Overview of the Research Design

The methodology of a mixed research design is a paradigm that encouraged both pre-determined and emerging methods as quantitative and qualitative methods separately (Creswell & Creswell, 2017; Wisdom & Creswell, 2013). Mixed research design permits a more complete and synergistic utilization of data as both statistical and text analysis could be stressed (Sale, Lohfeld, & Brazil, 2002; Teddlie & Tashakkori, 2009). Volunteer sampling method is adopted and the researcher used experimental procedure, survey, brief interview and observation for data collection, which is analyzed by thematic analysis. As some modification would be made, the original author of the FEATS scale, Dr Linda Gantt, have been contacted and suggestions were given by her.

3.2 Participants

The sample consisted of 61 participants. The participant included 18 males and 43 females, aged between 18 to 29. The age distribution was mostly focused on the 18, 19, and 21 years old subjects. 25 of the participants were recruited through pool system which 2 credit points would be distributed to them as a reward.

3.3 Materials and Measures

3.3.1 Materials

Sketch Paper. The participants were given a 265 x 375mm white sketch paper for the

Draw-A-Person-in-the Rain projective drawing test. The size of the sketch paper has been modified from the original FEATS test, changed from 12 by 18 inches which are of 305mm x 457mm to 265 x 375mm. The sketch paper used in the present study is as almost half of the sum of the DAPR paper (A4 size, 210 x 297 mm) and FEATS paper, $(210+305)/2 \times (297+457)/2 = 258 \times 377$.

The reason for the modification is to balance between the materials chosen in Draw-A-Person-in-the Rain (210mm x 297mm, A4 size) and FEATS's Person-Picking-Apple-from-a-Tree (305mm x 457mm, larger than A3 size). As in FEATS, the materials chosen were water markers, and the brushwork and stroke would be a lot wider than color pencil, so, larger sketch paper is used to counter the problem of space. While in DAPR, A4 size is for 10 color to perform only, for 12 color, a larger size of paper should be used to perform.

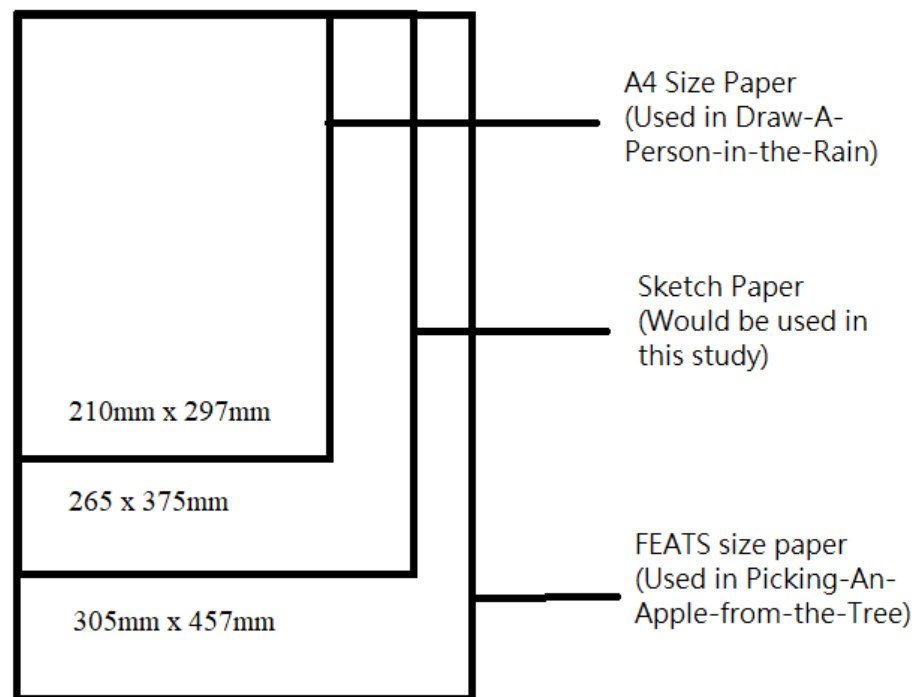


Figure 2. Comparison of three sizes of paper

Color pencil. The color pencil used in the study consisted of 12 colors as Yellow, Orange, Pink, Magenta, Red, Green, Dark green, Brown, Purple, Turquoise, Blue, and Black.



Figure 3. 12 Colors of the color pencils

Some modifications have done in the coloring, as the type of pen change from color markers (FEATS) to oil-based color pencils, and from 10 colors (DAPR) to 12 colors.

For the change in the type of pens, as in FEATS would recruit subjects that are children and patients with mental disorders, color markers would be easier for them to handle.

However, in the current study, subjects to be recruited would be adults without severe mental

disorder. Therefore, oil-based color pencils would let the participants make use of their creativity fully.

For the change in number of color pencils, in DAPR, the subjects would have less space to create, while in the present study, the participants would have larger space to use. Thereby, the choice of color should be increased.

Pencil and eraser. The pencil given was MG CN's HB wood pencil (product model: AWP30411). The eraser was MG CN's 4B soft eraser (product model: AXP96320). The participant was handed with a set of pencil and eraser standardized as aforementioned.

Guiding notes of Post-Drawing Interview (PDI). The note and script were printed on white, 210mm x 297mm (A4 size) multi-purpose paper with the words stated in Appendix B. The script was read by the researcher and the questions were asked in the sequence of the note. However, some more follow-up questions were asked out of the script when the participant have given out some unique answers. Thereby, in total of 12 to 15 questions were asked during PDI.

Recorder. The brief interview in PDI section was recorded by a recorder. The recorder used in the study was yescool® A20 16GB recorder.

3.3.2 Measures

DASS-21 questionnaire. The Depression Anxiety Stress Scale (DASS-21) was used in the present study. Each participant received a single sheet of white, 210mm x 297mm (A4

size) multi-purpose paper with the words stated in Appendix C printed on it. The scale is ranged from (0) none to (3) usually/always. This version of DASS-21 is translated by a Hong Kong professor, Dr. Calais Chan and has proved to have strong psychometric properties (Chan, 2001; Taouk, Lovibond, & Laube, 2001).

Scoring of DASS-21. The scoring was categorized as shown in Appendix D and each item was added up. There are no revise items in the questionnaire, so 0 refers to 0, and 1 refers to 1 and vice versa. The total score was multiplied by 2 as the scoring is originally for 42-items scoring (Crawford & Henry, 2003; Henry & Crawford, 2005).

FEATS rating sheet. The rating sheet included 14 items shown in Appendix E as Prominence of Color, Color Fit, Implied Energy, Space, Integration, Logic, Realism, Coping Strategies, Developmental Level, Details of Objects & Environment, Line Quality, Person, Rotation, and Perseveration. The scale is ranged from (0) to (5), from lack of the items to fully adequate of the items, varieties lies in each item. In order to apply the FEATS scoring system in DAPR, some items have been modified (Gantt, 2001; Gantt & Anderson, 2009; Gantt & Tabone, 2012). The rating sheet and the content tally sheet were rated by 3 raters, the raters had a briefing session and training before rating the participants drawings. A Pilot rating, for each rater to rate 5 drawings, was conducted to ensure each rater did not have any misunderstanding in the ratings.

Coping strategies. The item originally in the FEATS is problem-solving, but in DAPR

projective drawing test is mainly used to test the drawer's coping strategies towards stressful environment but not their problem-solving skills. As coping strategies is one of the properties of problem-solving skills (D'Zurilla & Chang, 1995; Maghan, 2017), by restraining the item to coping strategies would be a more precise presentation.

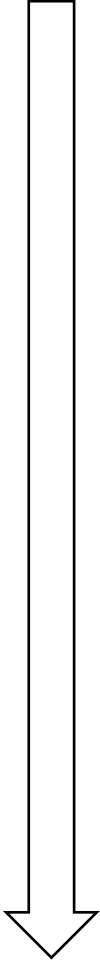
Rotation. In the original FEATS scoring system, rotation was about the tilt of the apple tree and the person. In DAPR, trees were not always appeared, but rain was required to exist. Therefore, the rotation in this study was about the rain and the person.

Related and non-related theme in Depression, Anxiety, and Stress. Research have been done to show several items that are related to depression as color, implied energy, space, and details, while others items have small to none effect with depression patient (Gantt, 2001; Gantt & Tabone, 2012).

Color. The prominence of color and color fit indicted problems. (Goodnow, 1977; Gantt, 2001; Gantt & Tabone, 2012). For depression patient, they used less color, usually in 1 color only and the picture main color tone would be black or blue (Kapçı, 1998), while people have anxiety would use more color than normal (5 colors).

Implied Energy. Comparing to other patients and normal participants, depression patient implied less energy in the picture by showing on the movement of the person in the picture (Gantt, 2001; Gantt & Tabone, 2012). The movement of the person in the rain and its relevance of implied energy was shown in Table 3.

Table 1 Implied Energy and Movement of the person in the rain

Implied Energy	Movement of the person in the rain
	Prone (lying down)
	Sitting
	Standing on implied or actual ground
	Standing in a building
	Floating (feet higher than base with no groundline or visible support for feet)
	Slipping
	Dancing
	Jumping up (may have "action lines")
	Falling down (in the sky)
	Flying

Space. The patients of depression would use less space of the paper, as the person in the picture, and the use of whole drawing paper was less than other participants. (Gantt, 2001; Gantt & Tabone, 2012).

Details of person and environment. The depression patient would draw stick figures and less details draw in the environment (Van Hoof, Hulstijn, Van Mier, & Pagen, 1993). For example, the tree drawn would be lack of leaves but only drawing the tree crown.

Content tally sheet for Draw-A-Person-in-the-Rain. As the content tally sheet taken from FEATS is about Person-Picking-an-Apple-from-the-Tree (PPAT), some items need to add or modify in order to apply to Draw-A-Person-in-the-Rain (DAPR).

Main color theme. The counting of main color theme is added as the difference of prominence of color and color fit appear in depression and anxiety patient. The depression patient would mainly use the color of grey, black, and blue, while anxiety patient would use variety of color (Becker et al., 1995; Nolan, Dai, & Stanley, 1995). A scoring table as shown in table 4, have created to score on the color used on clothes, and color used on the whole picture.

Table 2 Scoring of color used on clothes and whole picture

Scoring	Color used on clothes	Color used on the whole picture
3	Red, yellow	Orange
2	Blue, green	Pink, magenta, dark green, turquoise, purple
1	Black, brown	Other color
0	Other color	

Movement of the person. Some items have added in the criteria of the implied energy. In the original FEATS's content tally sheet, the action would mainly be related to the action of picking apple. Therefore, some items that are not relevant to man-in-the-rain have been deleted and some items have been added.

The action of hanging on the tree have been deleted and actions of dancing and slipping have been added in the content tally sheet.

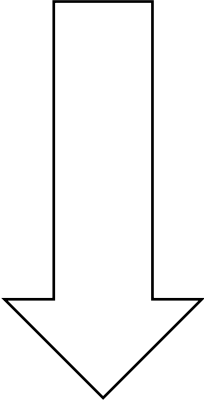
Age separated. As the person in the drawing of the rain usually indicted the drawer himself/ herself, the other person drawn might be the significant others of the drawer. The age of the person in the picture become very important as a metaphor of past, present, or future, the drawer would like to identify. Therefore, to make it clear, the age of the person would be divided from baby, child, adolescent, adult to elderly.

Rain instead of tree. Since the theme of the projective drawing test is man-in-the-rain, the main focus would be the person and the rain itself. Therefore, the original FEATS content tally sheet's focus on the tree would need to changed.

Color of the rain. The seriousness of problem might show in the color of rain as the rain in black or dark blue would indicate a more serious problem than the rain in blue or turquoise (Cohen, Hammer, & Singer, 1988; Kapçi, 1998; Nolan, Dai, & Stanley, 1995).

Different types of raindrop. A larger size of raindrop indicated a more intensive stressful environment (Carney, 1992; Verinis, Lichtenberg, & Henrich, 1974; Willis, Joy, & Kaiser, 2010). The most common raindrop was listed in Table 5 with the seriousness of stress level in the environment.

Table 3 Seriousness of stress level in environment and type of raindrops

Seriousness of stress level in environment	Type of Raindrops
 <div style="display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">increase</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Seriousness of stress in environment</div> </div>	Dotted raindrop (.)
	Line-shaped raindrop (short)
	Line-shaped raindrop (long) (l)
	Mixed with line-shaped and dotted raindrop
	Waterdrop-shaped raindrop

Intensity of rain. The intensity of rain also related to the Seriousness of stress level in environment, the heavier the rain, the more serious stress level in environment was implied (Carney, 1992; Willis, Joy, & Kaiser, 2010).

Interview encoding. In this study, the post-drawing interview was recorded and coded with thematic analysis. The interview was first transcript to word form, and the coding would be done on the document with 7 items in binary (0 absent /1 present) or of items. First, emotion, identified as positive, neutral, and negative. Second, color, any color mentioned during the interview would be counted. Third, accompany, any description in the conversation has stated partnering. Fourth, rain gear, mentioned the rain gear the person had. Fifth, rain, described the rain in the picture. Sixth, self in the picture, claimed that the person in the picture is the drawer him/herself. Seventh, mention life events, referred the picture in

the drawer's life events.

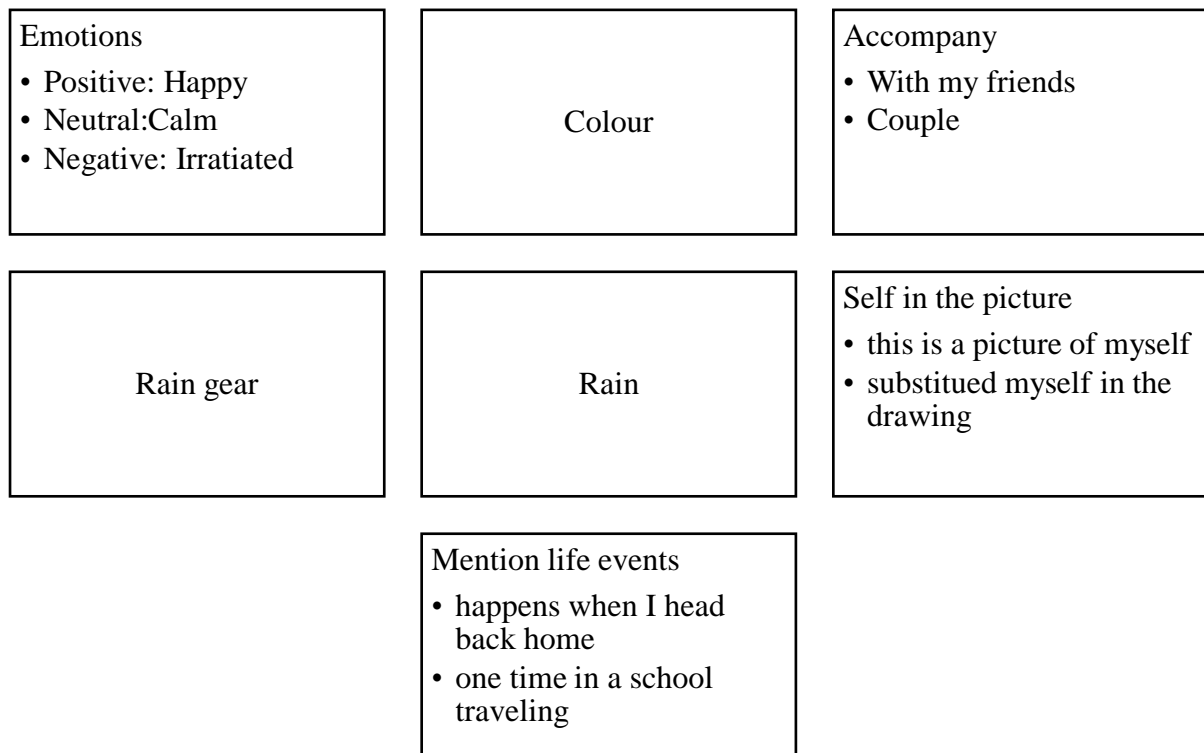


Figure 4. Demonstration of the encoding

3.4 Design

The research consisted of 3 main parts as the Depression Anxiety Stress Scale (DASS-21) questionnaire, draw-a-person-in-the-rain (DAPR) projective drawing test, and the post-drawing interview (PDI).

Survey. The survey used in the present study was as an identification of participants' depression, anxiety, and stress level according to their score in DASS-21.

Projective Drawing. Draw-a-person-in-the-rain (DAPR) used in the present study, according to the classification from the DASS-21, the similarities and differences, related and non-related items could be found by analyzing the drawing using the rating sheet and content

tally sheet. An integration of model was tried to carry out in terms of identifying the depression, anxiety, and stress through the drawing components.

Interview. The post-drawing interview (PDI) provide an in-depth understanding of the drawing with the drawer by asking 12 to 15 questions stated in Appendix B. The interview materials were transcript and encoded which then be analyzed.

3.5 Procedure

Participants first received an informed consent form. They read and signed on the form when they understand their rights and obligations in the study, the researcher was there to explain the terms to the participants. Second, the participant was requested to do a questionnaire (Depression Anxiety Stress Scales (DASS-21)) about their depression, anxiety, and stress level. The DASS questionnaire consisted of 21 items with a 4-likert scale and were presented in Traditional Chinese characters. The participant finished the questionnaire with paper and pencil. Counter-balance of questionnaire and projective drawing would not be done as the projective drawing would induce more feelings of the participant which may affect the result of DASS-21 if it was placed after the drawing and PDI session.

Third, the participant was asked to finish a drawing with the theme of a person in the rain. The Participant was given a 265 x 375mm (millimeter) white sketch paper, 12 color pencils (with Blue, Turquoise, Red, Purple, Green, Dark green, Brown, Black, Pink, Magenta, Orange, and Yellow), a HB pencil, and an eraser. No time limit would be set for the drawing

section. In the experiment, there was no time limit for the participant because of two reasons:

(1) according to the manual; (2) timing would create stress (Handerl & Reyher, 1964).

Usually, the participants would inform the researcher by giving out signals (for example:

looking at the researcher, putting down the pencil) when they finish the drawing, some would need extra instructions

First, as seen in the Handbook of art therapy (Malchiodi, 2011), both Formal Elements Art Therapy Scale (FEATS) and Draw-A Person-in-the-Rain (DAPR) did not set a time limit for the participants (Gantt & Tabone, 1998, p. 13; Naglieri, McNeish, & Achilles, 2004).

Secondly, there are mainly two sources of stress when one draws in experimental condition: the laboratory setting and intrapsychic process, as the drawing will trigger the internal feelings and thoughts while the participant is drawing (Handler, 1967). Also, the researcher would ask if the participant would need to add or take away anything from the picture; and if the participant would need to draw a new one as to ensure that the participants really finish the drawing.

Forth, a post-drawing interview (PDI) would be done with the participant. There were about 12 to 15 questions for the participant to answer, the questions were about 4 aspects: general understanding of the drawing, specific descriptions of the drawing, in-depth exploration of the drawing, related to the scoring system.

The whole processing was approximately 35 to 40 minutes.

3.6 Ethical Consideration

Since the study gathered information about depression, anxiety, and stress, and the coping strategies towards stressful environment. The participants might need to retrieve the past and possibly stressful experience. It may discomfort some participants. Due to this concern, participants were advised to quit the study and stop filling the questionnaire, drawing the DAPR, or taking the interview once they feel unacceptably uncomfortable. If the participant has a severe to extremely severe DASS score (Lovibond & Lovibond, 1996), and the participant has signed the informed consent form to agree for revealing his/ her score to he /she, an email would be sent to the participant with his/her score and some counselling service's contact. All submitted questionnaires, drawings, and recordings, confidentiality will be kept that apart from researcher and supervisor, no one will be permitted to get and read the collected data. After 2 years of the research project is finished or is published, all the data will be destroyed. Overall, the potential risk to the participants of current study is very minimal.

Chapter Four: Results

4.1 Intraclass reliability

The intraclass reliability is of the interrater reliability between the 3 raters that rated the FEATS rating scale. This described how strongly the ratings between the 3 raters resemble each other. As Koo and Li's research conducted in 2016 (Koo & Li, 2016), all items tested was of moderate to excellent level of reliability.

Table 4 Intraclass reliability of the 14 FEATS items between 3 raters

Item	Intraclass Reliability	p-value
1. Prominence of Color	.873	.000
2. Color Fit	.850	.000
3. Implied energy	.725	.000
4. Space	.948	.000
5. Integration	.780	.000
6. Logic	.702	.000
7. Realism	.741	.000
8. Coping Strategies	.853	.000
9. Developmental Level	.883	.000
10. Details of Objects and Environment	.910	.000
11. Line Quality	.760	.000
12. Person	.830	.000
13. Rotation	.686	.000
14. Perseveration	.555	.000

4.2 Correlations

Between DAS and FEATS. The correlation was used to discover the correlation between depression, anxiety, and stress (DAS), and the 14 FEATS ratings. The DAS scoring is calculated with Depression Anxiety Stress Scale (DASS-21), while the FEATS ratings are calculated with the 3 raters scoring's mean [(rater 1's score + rater 2's score + rater 3's score)/3].

Stress is negatively correlated with coping strategies. Anxiety is negatively correlated with prominence of color, color fit, implied energy, integration, coping strategies, realism, developmental level, detail of the environment and person. Depression is negatively correlated prominence of color, color fit, implied energy, and coping strategies.

Table 5 Correlation between DAS and FEATS rating

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Stress	-	.66 **	.58 **	-.20	-.22	-.07	-.09	-.11	-.13	-.05	-.33*	-.09	-.11	.01	-.06	-.18	-.12
2. Anxiety		--	.52 **	-.39 **	-.40 **	-.40 **	-.16	-.36 **	-.13	-.27 *	-.30*	-.35**	-.28*	-.09	-.34 **	-.09	.09
3. Depression			--	-.35 **	-.45 **	-.32 *	-.06	-.20	-.22	-.14	-.37**	-.11	-.18	-.03	-.08	.11	-.12
4. Prominence of Color				--	.86* *	.71* *	.27*	.68* *	.54* *	.62* *	.42**	.56**	.42**	.21	.41* *	.243	-.18
5. Color Fit					--	.68* *	.17	.65* *	.66* *	.63* *	.46**	.44**	.39**	.31*	.34*	.29*	-.195

	*		*	*	*				*			
6. Implied energy	--	.51*	.76*	.52*	.69*	.42**	.68**	.60**	.38*	.46*	.30*	-.14
		*	*	*	*				*	*		
7. Space		--	.52*	.34*	.48*	.33*	.72**	.47**	.03	.47*	-.06	-.23
			*	*	*					*		
8. Integration			--	.66*	.87*	.42**	.69**	.56**	.34*	.48*	.30*	-.26*
				*	*				*	*		
9. Logic				--	.79*	.54**	.45**	.40**	.36*	.25	.38*	-.08
					*				*		*	
10. Realism					--	.42**	.66**	.57**	.43*	.49*	.32*	-.22
									*	*		
11. Coping Strategies						--	.41**	.24	.12	.25	.28*	.11
12. Developmental Level							--	.58**	.11	.83*	.11	-.26*
										*		
13. Details of Objects and Environment								--	.22	.43*	.07	-.19
										*		
14. Line Quality									--	-.04	.38*	.11
											*	
15. Person										--	-.01	-.28*
16. Rotation											--	.24
17. Perseveration												--

Note: **= Correlation is significant at the 0.01 level (2-tailed), *= Correlation is significant at the 0.05 level (2-tailed).

Within PDI. The correlation within Post-drawing interview (PDI) used the three rating questions in the interview which the participant would be asked to rate between the intensity of rain, the perceived stress of the person in the drawing, and the protection from the rain gear. The rating is between 0 to 10 while 0 being the least and 10 being the most.

The results showed a significant positive correlation between the intensity of rain and the person perceived stress, and a negative correlation between the perceived stress of person and the protection from the rain gear. This indicated that the more intense rain, the person would perceive more stress, and with a higher level of protection, the stress perceived would be less.

Table 6 Correlation between PDI subjective ratings

Variable	1	2	3
1. Intensity of Rain	--	0.45**	-0.14
2. Person perceived Stress	--	--	-0.52**
3. Protection from Rain Gear	--	--	--

Between PDI and FEATS content tally sheet. From a question in the PDI, an interesting pattern was found. The last question in the PDI was asking the participant to point out the most depressed, anxious, stressed item in the drawing, and 31 subjects stated that “clouds”, “rain” would be that item. Therefore, a correlation between the PDI questions

(answered and rated by the participants) and Content Tally Sheet (rated by the three raters) was analyzed.

The result demonstrated positive correlation between the intensity of rain rated by the participant and the raters, as well as the perceived stress and number of clouds in the drawing.

Illustrating the close relation between raters rating and participants' perception on the drawing.

Table 7 Correlation between subject's rating and raters' rating

Items	1	2	3	4
1. Intensity of rain (subject)	--	0.36**	0.46**	0.25
2. Intensity of rain (rater)		--	-0.01	0.23
3. Perceived Stress (subject)			--	0.44**
4. Number of clouds (rater)				--

4.3 Regression

The regression model is made between the 14 FEATS ratings and Stress, Anxiety, and Depression, in another words, how the Stress, Anxiety, and Depression on the subject indicated the FEATS drawing elements. In the regression model, the FEATS rating is used as dependent variable while the DAS is as independent variable, since a subject would have the

emotion as depression, anxiety, and stress, then draw on the picture and presented in way of FEATS scaling items.

A positive association between stress and implied energy, meaning that a higher level of stress in the subject would present a higher level of effort and energy in the picture. Anxiety would negatively predict prominence of color, color fit, implied energy, integration, realism, developmental level, and detail of objects and environment, indicating that the higher level of anxiety of the subject would lead to a lower level of color used, less well of color fitting the drawing, less energy devoted, less integrated, being less realistic, less mature, and lower level of details presented in the drawing. Depression is negatively correlated with color fit and implied energy, meaning that a higher level of depression in the subject, the drawing of that subject would be less color fit and devoting less energy in the drawing.

Table 8 Regression between FEATS rating for Stress, Anxiety, and Depression

Variable	B	β	p-value
Prominence of Color			
Stress	.037	.207	.229
Anxiety	-.074	-.386**	.022
Depression	-.056	-.269	.076
Color Fit			
Stress	.047	.247	.134
Anxiety	-.073	-.354**	.027
Depression	-.091	-.409**	.006
Implied Energy			

Stress	0.49	.460**	.006
Anxiety	-.064	-.549**	.001
Depression	-.038	-.302**	.037
Space			
Stress	.007	.026	.888
Anxiety	-.053	-.193	.290
Depression	.008	.026	.873
Integration			
Stress	.033	.272	.123
Anxiety	-.064	-.486**	.005
Depression	-.015	-.103	.503
Logic			
Stress	-.001	-.004	.981
Anxiety	-.003	-.021	.908
Depression	-.036	-.202	.218
Realism			
Stress	.033	.258	.158
Anxiety	-.054	-.396**	.026
Depression	-.011	-.077	.628
Coping Strategies			
Stress	-.027	-.129	.463
Anxiety	-.019	-.085	.614
Depression	-.061	-.248	.110
Developmental Level			
Stress	.047	.240	.174

Anxiety	-.111	-.523**	.003
Depression	.005	.021	.891
Details of Objects and Environment			
Stress	.033	.171	.349
Anxiety	-.070	-.335	.060
Depression	-.024	-.105	.509
Line Quality			
Stress	.021	.126	.506
Anxiety	-.030	-.170	.352
Depression	-.002	-.010	.952
Person			
Stress	.051	.286	.105
Anxiety	-.105	-.548**	.002
Depression	.008	.038	.805
Rotation			
Stress	-.033	-.200	.291
Anxiety	.010	.055	.761
Depression	-.005	-.029	.862
Perseveration			
Stress	-.038	-.256	.167
Anxiety	.052	.327	.068
Depression	-.024	-.142	.380

Chapter 5: Discussion

5.1 Discussion

In the following part, three matter would be discussed. First, of the comparison between the conceptual framework and results found. Second, the new findings found in the present study. Third, an integration model of DAS in DAPR using FEATS ratings.

5.1.1 Comparison between the conceptual framework and results

Table 9 Summary of comparison between the conceptual framework and results

Variable	Conceptual Framework	Research results
Depression	(-) Prominence of Color	X
	(-) Color Fit	✓
	(-) Details of Objects & Environment	X
	(-) Person	X
	(-) Implied Energy	✓
	(-) Space	X
Anxiety	(-) Prominence of Color	✓
	(-) Color Fit	✓
	(-) Realism	✓
	(-) Implied Energy	✓
	(-) Person	✓
Stress	(+) Prominence of Color	X
	(+) Implied Energy	✓
	(-) Line Quality	X

Implied Energy. For implied energy, the three variables matched the hypothesis, as

depression and anxiety showed a negative predication while stress showed a positive prediction towards implied energy which is the energy and effort used draw the picture. For stress, since stress provide one's energy and motivation to meet daily challenges, in coping with the energy, the participant might draw extensive objects or body parts (e.g. teeth, indicated aggression) to the drawing to compromised with the stress (Sturner, Rothbaum, Visintainer, & Wolfer, 1980). For depression and anxiety, in depression subject, they usually performed as amotivation towards the activity, and would presented in a way of lack of energy in the picture (Weary, Marsh, Gleicher, & Edwards, 1993); while for the anxious participants, freezing behavior might occur under anxiety due to the nonconformity between the body sensation and requirement of the situation according to Reinforcement Sensitivity Theory (Mihić, Čolović, Ignjatović, Smederevac, & Novović, 2015; Paulus & Stein, 2010).

Color Fit. The regression between color fit and anxiety and depression fitted the proposed hypothesis that both anxiety and depression would negatively predict color fit while depression would have a more negative relationship with color fit than that of anxiety. The inappropriate color used is because of the over-use of pencil which these two groups of participants usually use pencil to draw the whole picture without using other color.

Prominence of Color. The anxiety could negatively predict the prominence of color which is the amount of color used, while depression and stress cannot predict with this item. The color used (darker shaded, less choice of color) may reflect a more unconscious

expression of the person's feelings towards psychological and physical distress (e.g. anxiety and physical pain) (Broadbent, Niederhoffer, Hague, Corter, & Reynolds, 2009). As anxiety has a sensitizing effect on pain, the distress would then present in the way of low in color fit (less choice of color) (Rhudy & Meagher, 2000).

Person and Realism. Anxiety has a negative indication with person, meaning that the higher anxiety level, the person in the drawing would be less like a person (with less human features). As Handler and Reyher's research in 1965 (Handler & Reyher 1965, pp.305-313), the person figure in the drawing being less realistic, increase head simplification, and increase trunk simplification indicates anxiety. While depression could not predict with Person, a similar result was found with Manickam's research conducted in 2016 that a difference was found between depressive (worse in person rating) and non-depressive patients but not significantly (Manickam & Sajani, 2016).

Details of Objects & Environment and Space. A research in understanding the relationship between drawings and pain was conducted in 2009, and finding out that a larger space used is associated with worse outcomes, including worse pain and symptom. Different from the research hypothesis of this study, the mentioned research stated that smaller drawings were associated with greater happiness and vitality (Broadbent, Niederhoffer, Hague, Corter, & Reynolds, 2009).

Line Quality. The stress could not predict the line quality in the drawing. As seen in the

regression table, all three variables were not significant with this item because the data was not normally distributed in this item (Appendix G).

5.1.2 New findings

Table 10 New findings of the present study

New Findings	
Anxiety	(-) Integration
	(-) Developmental level
Stress	Relationship between Rain, Protection, and stress
	Relationship between clouds and stress

Anxiety, Integration, and developmental level. The drawing style of the person is not fitting their level which means that the drawing is too simple or naïve comparing to the participants' age (young adults). Freud (1977) proposed that people would adopt the style of age regression to reduce the anxiety arising. This type of defense mechanism, regression, reverts the doer to an earlier stage of development, and one would employ a more childish mannerism. Moreover, using projective drawing as a tool would let the subjects easier to let out their hidden emotions and project them on the picture. Since the regression would be obvious in the drawing, this causes a lower level of integration found in the drawing as well.

Relationship between Rain, Protection, and stress. The present study obtained a similar result as Krom's research in 2002 that the person having more resource, could suggest the person could manage better with stress as the protection (rain gear) is one of the resources the person could get (Krom, 1997). Also, as rain is metaphor as stress in the drawing, the

more intensive the rain is, implying more stress the person may perceived. This is closely related with the coping balance index created by Lack (1997).

Relationship between clouds and stress. In the DAPR, rain implied for the stressful environment the person (drawer) is facing, and the clouds are the formation of rain (or the root of the stressful environment), a larger number of clouds indicating a greater scale of raining implying for a huge amount of stress (Lack, 1997; Naglieri, McNeish, & Bardos, 1991).

5.1.3 Integrated model

To integrate the result of the present study, a model is designed to discriminate stress, anxiety, and depression in Draw-A-Person-in-the-Rain using the FEATS ratings. First, all three variables are significant with implied energy: stress was positively predicting implied energy, and anxiety and depression are both negatively predicting implied energy. Therefore, seeing a DAPR with excessive energy and effort could indicate a high level of stress.

Then, with a drawing with low level of implied energy. Differentiating the drawing by color fit and prominence of color, while the one high in depression would have a worser color fir and the one with anxiety would use less color in the drawing.

Also, the presence of clouds and the number of clouds is also related to the level of stress.

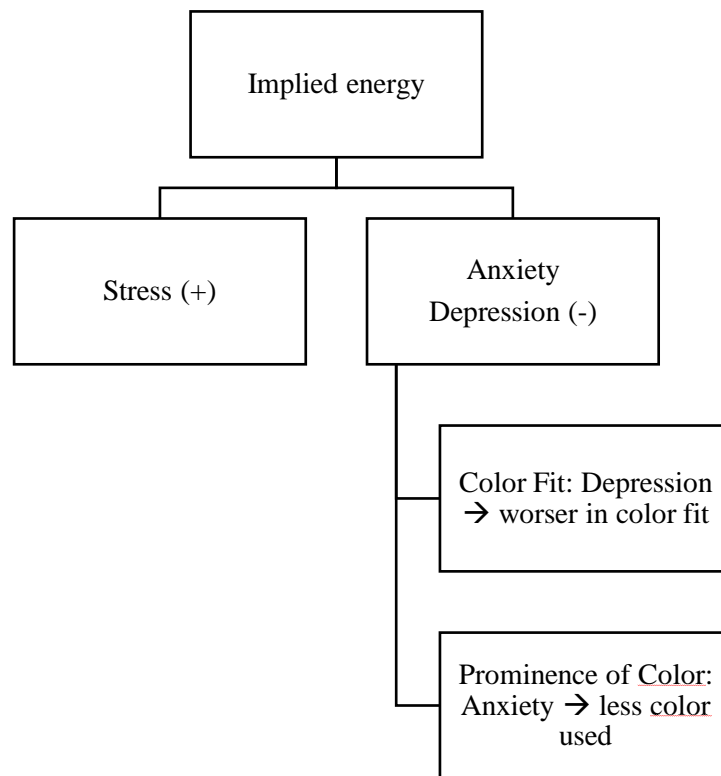


Figure 5. An Integrated model of DAS in DAPR using FEATS

5.2 Limitation

Intraclass reliability in Rotation and Perseveration were not adequate. The intraclass reliability of Rotation and Perseveration were .686 and .555 respectively. Comparing to the other items, these two variables were obtaining a fair reliability only, and could not be normally disturbed (Appendix G).

Drawing sequence not counted yet. As suggested by the art therapy manual, the sequence of drawing is curial to analyzing the drawer's hidden messages. For example, the order of drawing a person, normally would be a top-down process (head to body to feet). If a participant drew the limbs first, may indicate some issues with the person's self-concept or inter-personal relationship (Naglieri & Pfeiffer, 1992). However, these data were not in-use

for analyzing.

Content Tally Sheet data not used completely. The content tally sheet consisted of 14 scales, many items were not used, for example, the gender of the person (may see if the drawer have use the same gender as him/herself to the character in the picture), face orientation (usually front face indicating the highest energy level, while back or profile would be of less energy), age of the person (Groth-Marnat & Roberts, 1998).

5.3 Further Studies

Defining Rotation and Perseveration better. The scoring of these two items could be clarify. As using a diagram to show the level of rotation and scoring, this could visualize the scoring (as seen in figure 6). For the Perseveration, a clearer description of scoring should be performed, a suggested version is stated down below, using numbers or percentage to replace pure wordings (referring to table 11).

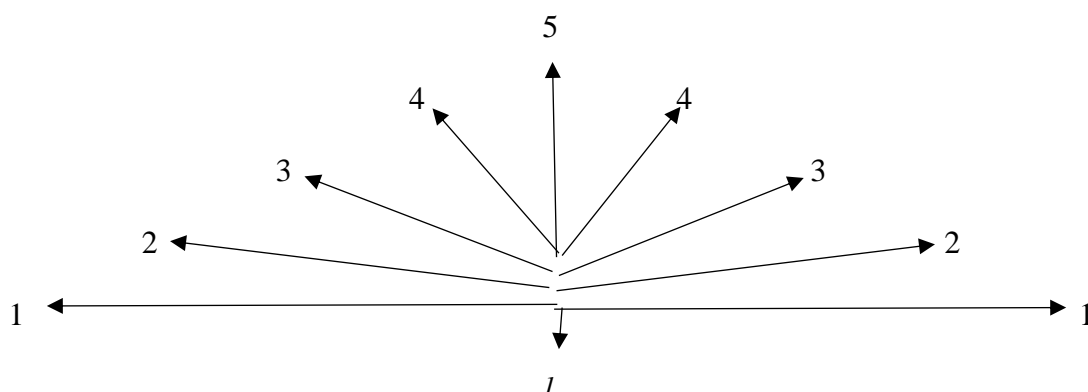


Figure 6. Rotation in Illustration

Table 11 FEATS Perseveration scoring between original and modified version

Score	Original	Modified version
0	This variable cannot be rated.	This variable cannot be rated.
1	The picture has a great deal of perseveration (ex., a line is drawn over and over until a hole is worn in the paper.)	61-80% of the picture is consisted of repeated pattern (e.g. circles, lines), without conscious control
2	The picture has a considerable amount of perseveration.	41-60% of the picture is consisted of repeated pattern (e.g. circles, lines), without conscious control
3	There is a moderate amount of perseveration (such as many little marks that appear to be multiple stems on one apple); or, there is only one area where a line is drawn over and over.	21-40% of the picture is consisted of repeated pattern (e.g. circles, lines), with certain level of conscious control
4	There is a slight amount of perseveration.	1-20% of the picture is consisted of repeated pattern (e.g. circles, lines), with certain level of conscious control
5	There is no perseveration.	There is no perseveration.

Recorded the drawing sequence and ask related questions. To understand better about the drawing sequence of the participants, the researcher is suggested to record the drawing sequence for the subject (the object drawn and the color used sequence), and ask

about the drawing sequence as well.

In use of Content Tally Sheet. Some more researches could be done with the content tally sheet, for example, to test between the gender in the picture and the drawer's gender with level of DAS, to examine between the orientation of face and movement of the person in the drawing.

Chapter 6: Conclusion

In responding to hypothesis 1, depression would negatively indicate color fit and implied energy, while anxiety would negatively indicate prominence of color, color fit, implied energy, integration, realism, developmental level, and person, and stress would positively indicate implied energy. As hypothesized, the present study may be able to find the universal symbol and sporadic symbol of the participants, and a universal symbol indicating stressed, depressed, and anxious found was the clouds and rain. Answering to hypothesis 2, an integrated model of depression, anxiety, and stress in Draw-A-Person-in-the-Rain (DAPR) using the FEATS ratings were designed as using implied energy to discriminate stress from DAS, and using color fit to separate depression from depression and anxiety.

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Appendix A
Informed Consent Form

Informed Consent Form

An Application of FEATS scoring system in Draw-A Person-in-the-Rain (DAPR):
Distinguishing Depression, Anxiety, and Stress by Projective Drawing

You are invited to participate in a research study conducted by Au Pui Kwan in the Department of Counselling and Psychology under the supervision of Dr. Yu, Kai-Ching Calvin, at the Hong Kong Shue Yan University.

PURPOSE OF THE STUDY

The purpose of this study is to investigate the application of Formal Elements Art Therapy Scale (FEATS) on Draw-A-Person-in-the-Rain (DAPR) and to distinguish the similarities and difference on depression, anxiety, and stress presented in drawings.

PROCEDURES

The experiment would consist of two parts and would take about 35 to 40 minutes for the whole process. The first part would be a questionnaire about the levels of depression, anxiety, and stress of the participant. The questionnaire has a total of 21 questions written in Chinese, which takes about 10 minutes to finish. The second part would be a projective drawing test as and a post-drawing interview (PTI). The theme of the projective drawing test is man in the rain, and the participant would be given a 265 x 375mm (millimeter) white sketch paper and 12 color pencils. There is no time limit for the drawing test. A PTI would be done after the drawing test, couple of questions will be asked.

POTENTIAL RISKS / DISCOMFORTS AND THEIR MINIMIZATION

This procedure has no known risks. You may find expressing your personal experience during the procedure somewhat uncomfortable and upsetting. Such discomforts, however, should be no greater than what we experience in everyday life.

COMPENSATION FOR PARTICIPATION

Year 1 students from Hong Kong Shue Yan University recruited from the student pool system could gain 2 credit points (counted as 30 minutes section) by joining this study, while other participants may not gain any compensation for participation.

POTENTIAL BENEFITS

During the process of the study, you may know more about yourself in your stress coping and how environment stress happening on you though the drawing and PTI.

Besides, your efforts provide valuable information on the research study.

CONFIDENTIALITY

The hardcopy of the data (i.e. the drawings as draw-a-person-in-the-rain, Depression, Anxiety, and Stress Scale (DASS) questionnaire, content tally sheet and scoring sheet of Formal Elements Art Therapy Scale (FEATS), informed consent form) will be stored in a locker with a lock and only the researcher and supervisor will have the access of the data. The softcopy of the data (i.e. the scanned drawings, the SPSS dataset of the DASS scoring and FEATS scoring) will be saved and locked with password in an encrypted file and only the researcher and supervisor will have the access of the data.

The audio recording (as the recorder and recording files) will be saved and locked in the locker and encrypted file separately. Only the researcher and supervisor have the access of the data. Participant would have the right to revisit and erase part of / entire recording.

DATA RETENTION

The data would be stored up to 2 years after the project is finished or is published. All materials will be saved anonymously and no participant name will be marked.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary. This means that you can choose to stop at any time without negative consequences.

QUESTIONS AND CONCERNS

If you have any questions or concerns about the research, please feel free to contact [Au Pui Kwan, Ashley (tel no: 65707731; email address: puikwanau@gmail.com) or Dr. Yu, Kai-Ching Calvin (email address: kcyu@hksyu.edu.hk).

SIGNATURE

For research study

- I _____ (Name of Participant) understand the procedures described above and agree to participate in this study; and

For audio recording

- I ^agree / do not agree to audio recording.

For DASS score Revealing

- I ^agree / do not agree to receive my DASS score if it is found out to be at severe to extremely severe level.
 - Email:
-

Signature of Participant

Date

Date of Preparation: 4th April 2019

HREC Approval Expiration date:

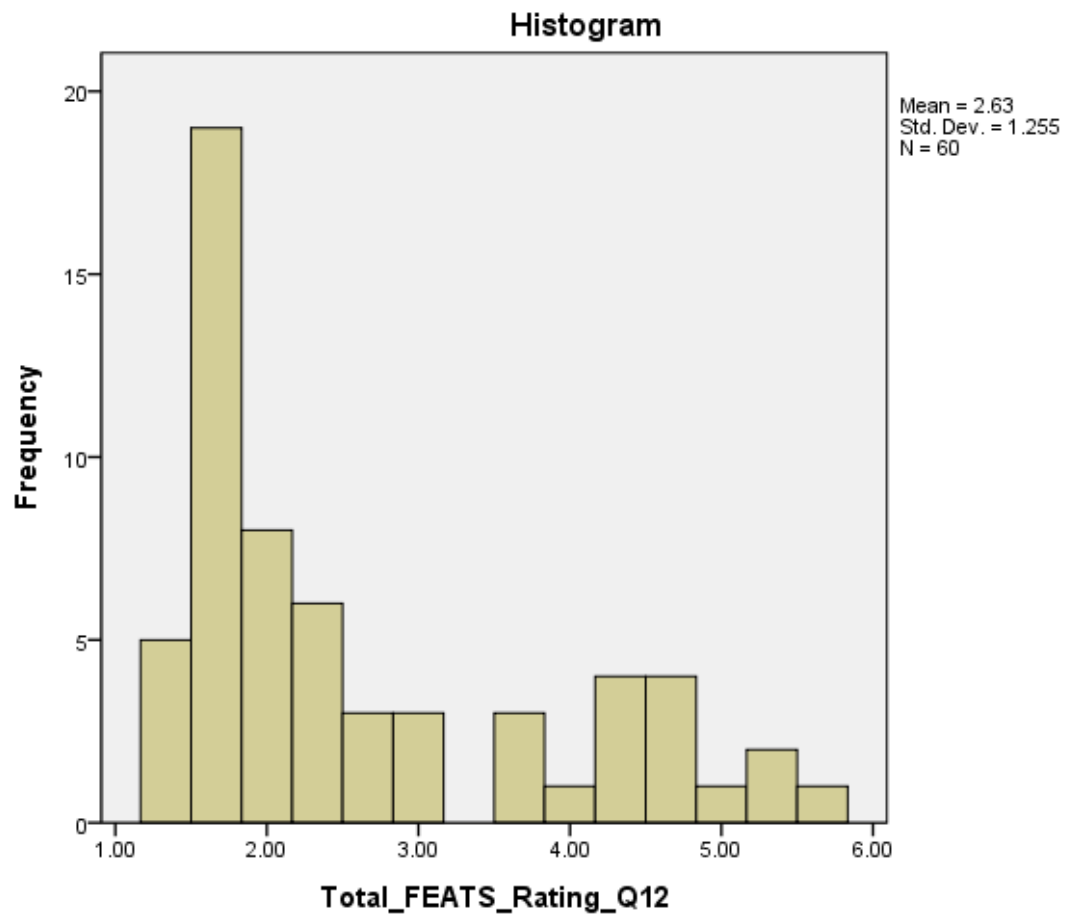
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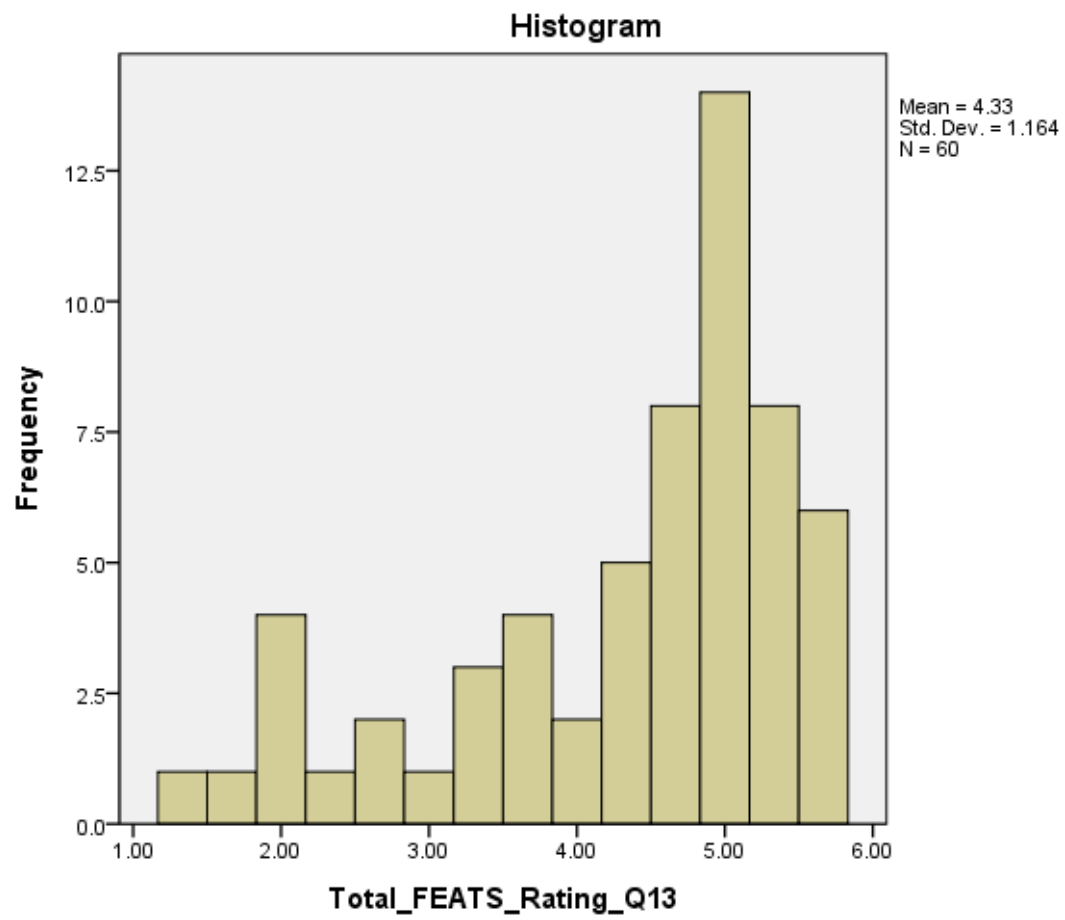
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Appendix G

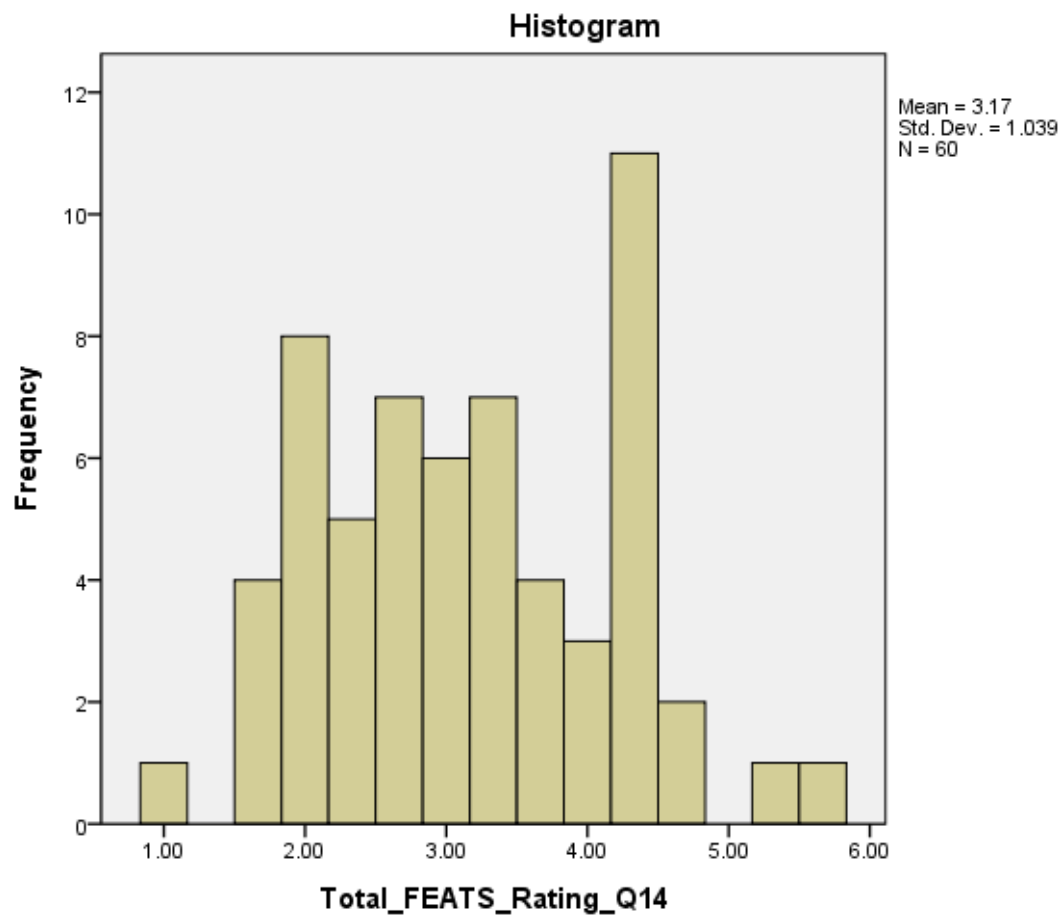
Distribution of items



Distribution of Line Quality



Distribution of Rotation



Distribution of Perseveration