

# Guidelines for Empathy Fostering Exercise for Industrial Design Students

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**Abstract:** With the growing emphasis of empathy in design field, designers with empathy are more expected to experience and understand the emotional concern of their users. Therefore, these designers' products can approach users' internal demands. In order to develop the empathy of future designers, it is important to include the empathy fostering program in design education. As the pilot study of empathy fostering workshop for industrial design students, the empathy fostering exercise in this research is the combination of Design Thinking and Feshbach's three empathy components model: discriminating affective cues in others, perspective taking, and emotional responsiveness. The research purpose is to explore guidelines for applying three components of empathy to Design Thinking. And the research method is conducting the qualitative questionnaire. The result of this study is the guidelines for applying three components to empathy exercise.

**Key words:** *Empathy Fostering Exercise, Design Thinking, Feshbach's three component model of empathy*

## 1. Introduction

### 1.1 The importance of empathy in design field

With the growing emphasis of User-centered design and Humanism, designers face not only the functional demands of users, but also the experiences and emotional concern of them. This trend reflects that the value of "empathy" is becoming important in design field. The CEO of IDEO, Tim Brown [1] said "If designers can develop their empathy through the activities such as role-play, they may create more fantastic services and experiences for customers." However, the current applications of empathy in design field are more like the exploration of users' demands with objective view. In other words, there are no many applications focused on developing designers' empathy. As a modern designer, it is necessary to concern the emotional aspect of users. Therefore, it is a big issue to strengthen designers' empathy for users and help them to empathize with users in the process of design.

### 1.2 The importance of empathy in design education

To develop designers' empathy for users, it is necessary to foster it with empathy program in design education. Nowadays, the empathy fostering programs are applying in Medicine and Nursing fields. On the other hand, in design education, the program focusing on fostering Industrial Design students' empathy seems to be few.

Accordingly, it is valuable to plan the empathy fostering program for Industrial Design students.

To create empathy fostering program for Industrial Design students, the content is supposed to combine both design-linked method and empathy theory. In design field, Design Thinking puts emphasis on the value of empathy, and the content is from Designer's problem-solving process, which is suitable for students to learn empathy in design process.

Nevertheless, the empathy in Design Thinking is still from the perspective of designer, which focuses on finding insights of users. To put more attention on the empathy for users, applying Feshbach's three component model of empathy to Design Thinking could be a strategy. Thus, the research purpose is to discover the guidelines of introducing Feshbach's three components of empathy to Design Thinking. In further research, the guidelines will be used to design the empathy fostering workshop for Industrial Design students, and it can be the cornerstone of future's empathy fostering program in design education.

## 2. Literature Review

### 2.1 Empathy in Design Thinking

Design Thinking is posed by David Kelly from Stanford University. It is the process generated from the experiences of designer's problem-solving. In Figure 1 , it shows the 5 steps of Design Thinking: Empathize-Define-Ideate-Prototype-Test[2].

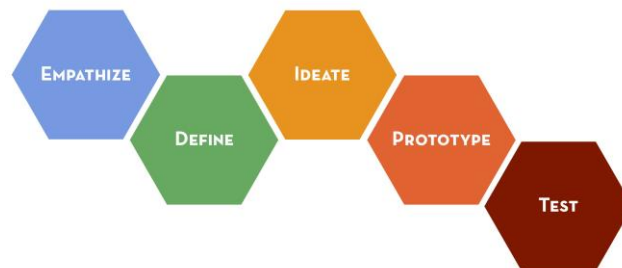


Figure.1 Design Thinking process

The first step of the process is “Empathize”. The reason why d.school emphasizes empathy is that for the designers who are humanists, it is crucial to understand the things users care. They list some methods to practice empathy. However, these methods are from the view of designers, which may not directly empathize with users. Thus, it is important to introduce empathy theory to Design Thinking in order to practice empathy in the design process.

### 2.2 “What-How-Why” method

In this research, “What-How-Why” method of Design Thinking is employed to be the base of the empathy fostering exercise. The content is as the following.

In the process of design, designers usually have to observe user behavior or collect relative information. At this stage, “What-How-Why” can be a useful tool. The method basically needs the photos of user's behavior or the conditions of them interacting with the products. When designers get these pictures, they analyze the context of them and follow the steps of What, How, and Why to conduct team discussion. The process is shown in Figure2 .

concrete		emotional	
WHAT (what are they doing in the photo?)	HOW (how are they doing it?)	WHY (why are they doing it this way? Take a guess!)	
-little girl picking root vegetables	-she's smiling, even though it looks bigger than her, it looks fun	-somehow it's been made into a game...gardening is fun...getting messy is fun to her?	
			

Figure.2 The process of “What-How-Why”

The steps of “What-How-Why” are as below: First of all, designers can think about “What”, which means what are the users doing? It is the basic observation exercise in concrete level. Secondly, they can consider “How”, which refers to how do the users do this thing, in what condition, or with what kind of emotion? And finally, they have to think “Why”, that is, why do the users do this thing? Through the exercise, designers have the chance to think deeper about user.

### 2.3 The definition and content of Empathy

According to Feshbach’s theory[3-5], empathy is the ability to discriminate and understand other’s emotion. It is also the outcome of cognitive and affective processes that operate conjointly. There are three components in the model:

1. Discriminating affective cues in others: The ability to recognize other’s emotion through cues (Cognitive empathy).
2. Assuming the perspective and role of another person (Perspective taking): The ability to take other’s perspective and think through other’s viewpoint (Cognitive empathy).
3. Emotional responsiveness: The ability to experience other’s emotion (Affective empathy).

To see if subjects experience the different aspects of empathy, their feedbacks related to the three factors will be observed in the following empathy exercise.

## 3. Research method and the steps of the exercise

### 3.1 Research method

The preliminary empathy exercise was practiced by small sample. And the research method used in this study was qualitative questionnaire. To examine the effect of the empathy exercise and discover the guidelines, consequence of qualitative questionnaire and the answers from “What-How-Why” exercise were analyzed

### 3.2 Subjects

There were 17 Industrial Design students, 8 females and 9 males, joining this empathy exercise. In order to have team discussion, they were divided into 3 groups by random sampling.

### 3.3 The steps of empathy exercise

The empathy exercise was one- hour activity. There were 6 steps of the empathy exercise.

1. Grouping and introducing the exercise (10 min):

Subjects took the seats by the group numbers. Researcher started to introduce the exercise.

2. Introducing “What-How-Why “method and having Q&A (5min):

Researcher explained the content of “What-How-Why “method and the example, which was shown in Figure 2. And then, subjects could ask questions during Q&A.

3. Distributing discussion sheets and doing personal observation (10-15min):

Researcher gave everyone a discussion sheet with a user’s picture, showing in Figure3, was the observing object. With the guide of imagining themselves as the user in the picture, subjects observed the picture individually and answered the three questions of What, How, and Why. It is shown in Table1. They had to write the answers in descriptive words on the post-it.



Figure.3 The user’s picture

Table 1. “What-How-Why “questions

What	How	Why
If you were the old person, what were you doing when you took the photo?	If you were the old person, how was the condition of you when you took the photo?	If you were the old person, why did you do this thing?

4. Discussing in groups (20min):

After the personal observation, every member posted their answers on the poster of each group. There were three sections for the answers of What, How, and Why on the poster. And subjects shared the opinions with other members. Finally, they had to collect and organize the thoughts as their group’s answer.

5. Presenting (10 min):

Every group chose one member to be presenter. And presenters shared their answers to all the people. After every group’s presentation, researcher gave a short feedback and finally made conclusion to all the members.

6. Writing the qualitative questionnaire (10-15min):

There were two open-ended questions about the exercise:

(1) After today’s exercise, do you feel your state of mind is same or different as the condition before the exercise? (Yes/ No, If you write yes, please explain your reason.)

(2) Any feedback or suggestions?

## 4. Result and Discussions

### 4.1 Result and Discussion1: The review of the original empathy exercise

In the original exercise, these two components: “Discriminating affective cues in others” and “Emotional responsiveness” were the expected phenomenon generating with the process. Therefore, researcher observed these components in different stages. On the other hand, the component of “Assuming the perspective and role of another person (Perspective-taking)” was employed in the “What-How-Why” exercise to help subjects think in the role of user.

To discuss the process of exercise in a clear way, the 6 steps are simplified into these stages in Table 2:

Table 2. The simplified stages of empathy exercise

Original steps	New stages
	Stage0: Warm-up
1 Grouping and introducing the exercise	Stage1: Introducing the exercise and discussion sheet
2 Introducing “What-How-Why “method and having Q&A	
3 Distributing discussion sheets and doing personal observation	Stage2: Practicing “What-How-Why” method
4 Discussing in groups	
5 Presenting	
6 Writing the qualitative questionnaire	Stage3: Writing the qualitative questionnaire

According to the result of empathy exercise and qualitative questionnaire in Table 3, here is the review of the application of three components:

Table 3. The outcomes of the empathy exercise

Sources	Discriminating affective cues in others	Assuming the perspective and role of another person (Perspective-taking)	Emotional responsiveness
<b>The answers of “What-How-Why” method</b>	<p>Only some relative answered about this component, which included emotional words</p> <p>1 Most of the emotional words were shown in “How” answers</p> <p>2 There were positive and negative emotional words in answers .(i.e. Happy, Sad)</p>	<p>Only some of relative answers</p> <p>Most of the relative answers were shown in “What” and “How” answers in two ways:</p> <p>1 Used the first person in narration(i.e. I)</p> <p>2 Used monologues: Subjects tried to answer from the internal thinking of the user. (i.e. I am wondering how much money can I get from selling these items )</p>	There was no relative answer
<b>The feedbacks of qualitative questionnaire</b>	There was no relative answer	<p>Only some of relative answers</p> <p>The two sorts of feedbacks:</p> <p>1. The feedbacks about the empathy exercise: Few subjects said they learn to think in others’ viewpoint</p> <p>2. The feedbacks about the team discussion: Most subjects said it helps them to listen to different opinions</p>	There was no relative answer

#### Stage1: Introducing the exercise and discussion sheet

From Table3, there were not many reflections about discriminating affective cues in others and emotional responsiveness. The possible reasons are that subjects may not know these components very much, and didn’t know how to use these skills in the exercise, either.

##### 1. Discriminating affective cues in others:

In the original exercise, there was no clear introduction about the concept. It is recommended to add the explanation of this component and have a warm-up of sensing other’s emotion. For example, the facial expression pictures can be used to help subjects discriminate other’s emotion. So subjects can understand the meaning of this component and try this skill in the exercise.

2. Assuming the perspective and role of another person (Perspective-taking):

There was an oral tip of “imagining yourself as the user in the picture” in the introducing stage.

3. Emotional responsiveness:

Same as the first component, there was no clear introduction and exercise about the concept “Emotional responsiveness.” So, it is suggested to explain the meaning of emotional responsiveness for subjects and add a warm-up of sensing self’s emotion. For instance, through the exercise of emotional quadrant, subjects recall their daily emotion and write down the emotions they usually have and the conditions when these emotions appear.[6]

Stage2: Practicing “What-How-Why” method

1. Discriminating affective cues in others:

Based on the answers of “What-How-Why” exercise, only some of the subjects mentioned this component. And there were positive and negative emotional words in the answers. The possible reasons for these conditions are:

(1) The emotional information in the user’s picture may be not abundant enough:

Because the user’s picture used in this exercise shown as Figure3 didn’t have clear facial expression, there was not enough emotional information to recognize. Therefore, subjects described the user’s emotion in both positive and negative ways.

(2) The time of the exercise only lasts an hour:

The practicing time might be short for subjects, thus only some of the subjects had the feedbacks about discriminating affective cues in others.

To improve these conditions, here are the suggestions:

(1) The picture using in this exercise should be with abundant emotional information.

(2) The time of this exercise should be longer than one hour.

2. Assuming the perspective and role of another person (Perspective-taking)

In this stage, there were the guides of “imagining yourself as the user” in What-How-Why” questions.

However; there were only parts of the subjects take the viewpoint of user, and others still thought the three questions in the view of themselves.

There are two possibilities for this phenomenon:

(1) With only one picture about the user and not much information about him, the picture couldn’t evoke subjects’ perspective-taking.

(2) The time of the exercise only lasts an hour:

The practicing time might be short for the subjects, thus only some of the subjects had the feedbacks about perspective-taking.

To improve these conditions, it is advised to follow these tips:

(1) Keep the guide of “imagining yourself as the user” in “What-How-Why” questions.

(2) Provide more than one picture of the same user or give the information about the user, such as persona, which can be useful for subjects to be in user’s position.

(3) The time of this exercise should be longer than one hour.

### 3. Emotional responsiveness

According to the answers of the exercise, there were no answers about emotional responsiveness. And the reasons could be:

- (1) The emotional information in the user's picture may be not abundant enough:

Because the user's picture used in this exercise didn't have clear facial expression, there was not enough emotional information to recognize.

- (2) The time of the exercise only lasts an hour:

The practicing time might be short for the subjects, thus no one had feedback about emotional responsiveness.

Thus, the improvements are:

- (1) Use the user's picture which has abundant emotion information to evoke emotional responsiveness.
- (2) The time of this exercise should be longer than one hour.

### Stage 3: Writing the qualitative questionnaire

The subjects' reflections mainly were sorted into two categories. And there were not many answers directly about the three components:

1. The feedbacks about the empathy exercise: Few of them mentioned they learned to think in other's role.
2. The feedbacks about the team discussion: Most subjects say it helps them to listen to different opinions.

In order to understand the feedbacks about three components of empathy, it is suggested to set the goals of the questions:

1. To understand if subjects experience the three components of empathy.
2. To see if the three components have influences on subjects.
3. To acquire the opinions and feedbacks about the empathy exercise.

## **4.2 Discussion2: The new version of empathy exercise**

The new version of empathy exercise is based on the review of original practice and suggestions.

The tips of new version of empathy exercise are as the following.

### Stage0: Warm-up

The stage is the additional one, which helps subjects to be familiar with the two kinds of emotion sensing ways.

1. Sensing self's emotion: It is helpful for subjects to develop the sensitivity of sensing their emotional responsiveness.
2. Sensing other's emotion: The exercise assists subjects to discriminate others' emotional cues.

### Stage1: The introduction of experiment and discussion sheet

To assist subjects to basically know discriminating affective cues in others and emotional responsiveness, the explanations of these two components are added in the new version. As for assuming the perspective and role of



another person (Perspective-taking), the new version still has the same oral tip of “imagining yourself as the user in the picture” as original version. Here are the two important things:

1. Introduce two concepts:
  - (1) Discriminating affective cues in others
  - (2) Emotional responsiveness
2. Guide subjects to be in the role of user to answer the questions on the discussion sheet.

#### Stage2: “What-How-Why” method

The advice about discriminating affective cues in others and emotional responsiveness in new version is: Using the user’s picture with abundant emotional information. And the tip for assuming the perspective and role of another person (Perspective-taking) is keeping the same guide of “imagining yourself as the user in the picture” in the three questions. Also, the numbers of user’s picture should be more. With the information about the character in the picture, it can guide subjects to get into the perspective of the user. And the content is as the following:

1. Prepare the questions and pictures for “What-How-Why” method
  - (1) Ask the questions with the guide of “assuming yourself as the user.”
  - (2) The user’s pictures should be with abundant emotional information. The numbers can be more than one, and it is encouraged to give subjects some descriptions about the user.
2. Conduct “What-How-Why” method
3. The practice time should be extended to more than an hour.

#### Stage3: Qualitative questionnaire

To acquire the feedbacks of three components of empathy, the questions should be asked point by point. Accordingly, the questions are changed into three types in new version:

1. Discriminating affective cues in others
  - (1) Inquire subjects if they notice the user’s emotion.
  - (2) If they do, ask them how to notice the user’s emotion (i.e. facial expression, gesture, etc.)
2. Assuming the perspective and role of another person (Perspective-taking)
  - (1) Inquire subjects if they take the perspective of the user in the process of this exercise.
  - (2) If they do, ask them what do they feel when they are in the role of the user.
3. Emotional responsiveness
  - (1) Inquire subjects if they have the change of emotion during the exercise.
  - (2) If they do, encourage them to describe the content of these emotions.

To see the differences of two versions, Table 4 is the comparison of original and new empathy exercise.

Table4: The chart of new and original versions of empathy exercise

	The application of three components					
	Discriminating affective cues in others		Assuming the perspective and role of another person (Perspective-taking)		Emotional responsiveness	
Stage0/ Warm-up	Original	New	Original	New	Original	New
		<b>Sensing other’s emotion</b>				<b>Sensing self’s emotion</b>
Stage1/ The introduction of experiment and discussion sheet	No introduction  Observe subjects’ conditions	<b>Introduce the concept of this component</b>	Guide subjects to imagine them as the user in the picture.		No introduction  Observe subjects’ conditions	<b>Introduce the concept of this component</b>
Stage2/ “What-How-Why “method	Questions & Pictures		Questions & Pictures		Questions & Pictures	
	Picture has not enough emotional information	<b>Provide pictures with abundant emotional information</b>	Guide subjects to think questions in the view of the user		Picture has not enough emotional information	<b>Provide pictures with abundant emotional information</b>
			1. Give just one user’s picture to observe.	<b>1. Picture’s numbers can be more than one</b>		
				<b>2. Give some descriptions about the user</b>		
	Practice time		Practice time		Practice time	
	The practice time is one hour	<b>The practice time should be longer than an hour</b>	The practice time is one hour	<b>The practice time should be longer than an hour</b>	The practice time is one hour	<b>The practice time should be longer than an hour</b>

Stage3/ Qualitative questionnaire	1. Ask subjects if they feel their state of mind changes after the exercise  2.If they do, ask them the to explain the reasons  3 Ask for any feedback or suggestion	<b>1. Ask subjects if they notice user's emotion</b>  <b>2. If they do, ask them how to notice user's emotion (i.e. facial expression, gesture, etc.)</b>	1. Ask subjects if they feel their state of mind changes after the exercise  2.If they do, ask them the to explain the reasons  3 Ask for any feedback or suggestion	<b>1. Ask subjects if they take the perspective of user in the process of this exercise</b>  <b>2.If they do, ask what do they feel when they are in the role of the user</b>	1. Ask subjects if they feel their state of mind changes after the exercise  2.If they do, ask them the to explain the reasons  3 Ask for any feedback or suggestion	<b>1. Ask subjects if they have the change of emotion during the exercise</b>  <b>2. If they do, encourage them to describe the content of these emotions</b>
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#### 4.3 Discussion3: The guidelines of applying three components to empathy exercise

Organized by the new version of the exercise, the guidelines are as below:

##### 1. Discriminating affective cues in others

- (1) It is recommended to have the warm-up of sensing other's emotions and explain the component for the subjects.
- (2) While practicing "What-How-Why" method, user's picture should contain abundant emotional information.
- (3) The practice time should be more than an hour.
- (4) Qualitative questionnaire can include the questions about the conditions and opinions of discriminating affective cues in others.

##### 2. Assuming the perspective and role of another person (Perspective-taking)

- (1) Before practicing "What-How-Why" method, researcher should guide subjects to imagine themselves as the user in the picture.
- (2) In addition to ask the "What-How-Why" in the view of user, there could be a series of photos of the same user. It is encouraged to give the information about the user, such as persona, to help user to be in the viewpoint of the user.
- (3) The practice time should be longer than an hour.
- (4) As for the questionnaire, researcher can inquire subjects' perspective-taking conditions and relative opinions.

### 3. Emotional responsiveness

- (1) It is recommended to have the warm-up of sensing self's emotion and explain the component for the subjects.
- (2) While practicing "What-How-Why" method, user's picture should contain abundant emotional information.
- (3) The practice time should be extended to more than an hour.
- (4) The questions of qualitative questionnaire can be the conditions and opinions of emotional responsiveness.

### 4. The feedbacks of the exercise

- (1) Ask them for any advice or feedback.

## **5. Conclusion**

This study is the pilot study of empathy fostering workshop for Industrial Design students. By reviewing the outcomes of qualitative questionnaire, there were some points to improve in the original empathy exercise. Along with the generation of the new version of empathy exercise, the guidelines for applying three components of empathy to the "What-How-Why" method in Design Thinking can be the reference of future empathy fostering programs. Furthermore, researchers and teachers in design field could try to create different forms of empathy fostering programs based on the principles of the research.

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