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Expansion of Classes, Transfer of Function, and Preference Tests in Adult Participants

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[1] Oslo Metropolitan University [2] Modum Municipality | **Título abreviado**: Expansion of Classes, Transfer of Function, and Preference Tests in Adult Participants
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Abstract: The purpose of the experiment was to investigate the effect of transfer of function transfer on stimulus preference across different conditions in a sample of 15 adults. Participants were trained on six conditional discriminations arranged as one-to-many training (AB/AC) and tested for the emergence of three 3-member equivalence classes. Fourteen of 15 participants passed the equivalence test. For the 14 participants, the classes were expanded by training three new stimuli GOOD (D1), NEUTRAL (D2), and BAD (D3), to A1, A2, and A3. This was followed by a test equivalence class formation including all relations. The participants were also tested for the preference of the B-stimuli before the conditional discrimination training and after the test for expansion of classes. In the preference test after the expansion test, participants were presented with the three B-stimuli mounted on pictures of identical objects in groups of three (three stimulus conditions). The pictures of objects were three identical soda cans, cars, and mobile phones. The main findings were that 3 of 14 participants picked B1 in the pretest while 8 of 14 participants picked B1 for all stimulus sets in the preference test.

Keywords: Choice, equivalence class, emergent relations, preference, stimulus equivalence, transfer of function

Expansion of Classes, Transfer of Function, and Preference Tests in Adult Participants

Several experiments have studied how preferences can be affected by training a specific function to one stimulus in an existing equivalence class (Arntzen, Eilertsen, et al., 2016; Arntzen, Fagerstrøm, et al., 2016; Barnes-Holmes et al., 2000; dos Santos & de Rose, 2018; dos Santos & de Rose, 2019; Eilertsen & Arntzen, 2017). An equivalence class is defined by the features of reflexivity, symmetry, and transitivity (e.g., Sidman & Tailby, 1982). The emergence of such untrained relations can, for example, be studied by training on six conditional discriminations, AB and BC relations, with three members in each class, followed by testing for the emergence of three 3-member equivalence classes. Reflexivity will be documented if the participant picks A1 and not A2 or A3 in the presence of A1, A2 or not A3 or A1 in the presence of A2, and so forth. Symmetry will be documented if the participant picks A1 and not A2 or A3 in the presence of B1, A2 and not A1 or A3 in the presence of B2, and so forth. The third feature, transitivity, will be documented if the participant picks A1 and not A2 or A3 in the presence of C1, and A2 and not A1 or A3 in the presence of C2, and so forth.

Training of necessary conditional discriminations as baseline of testing of emergent relations can be arranged in three different training structures, linear series (LS), one-to-many (OTM), and many-to-one (MTO). In LS at least one stimulus serves as both comparison and sample stimulus in different conditional discriminations. In MTO many sample stimuli are trained to comparison stimulus, while in OTM one sample stimulus are trained to many comparison stimuli. The effectiveness in producing equivalence classes have been discussed and the main results are the LS is the least effective, while difference between MTO and OTM is minimal (e.g., Arntzen, 2012). We employed OTM and simultaneous matching-to-sample (SMTS) for the presentation of the stimuli, which means that the sample stimulus and the comparison stimuli are presented on screen at the same time.

A function trained to one stimulus in an already existing equivalence class has been shown to transfer to the other members of the same class (e.g., Barnes-Holmes et al., 2004; Dixon et al., 2017; Dougher et al., 1994; Wulfert & Hayes, 1988). For example, Dougher et al. (1994) showed how respondent reactions from mild electric shocks could transfer to members of an equivalence class. In Experiment 1 which is relevant for the present study, participants were trained on six conditional discriminations in a two-choice MTS format arranged as OTM training structure and tested for two 4-member equivalence classes (ABCD). All eight participants formed equivalence classes. B1 was presented with shock, while B2 was presented without shock. A galvanic skin response was measured, and six of eight participants showed respondent elicitation for C1 and D1.

Some studies have explored alternative methods for testing the transfer of stimulus functions, such as using preference tests (e.g., Arntzen, Eilertsen, et al., 2016; Arntzen, Fagerstrøm, et al., 2016; Barnes-Holmes et al., 2000; Valdivia-Salas et al., 2013). For example, Barnes-Holmes et al. (2000) did three experiments in which preferences for cola-based drinks were influenced by conditional training with emotive words. In the first experiment, 36 participants were trained on four conditional discriminations in an LS training structure and tested for forming two 3-member equivalence classes. The A stimuli were emotive words, CANCER (A1) and HOLIDAY (A2), the B stimuli were nonsense syllables, VEK (B1) and ZID (B2), and the C stimuli were brand names of two cola-based drinks: BRAND X (C1) and BRAND Y (C2). After the test for emergent relations, 27 participants who passed the equivalence test were instructed to taste the two cola-based drinks (the colas were the same) and rate the drinks on a scale of 1 (least pleasant) to 7 (most pleasant). Sixteen participants rated the cola-based drink labeled with BRAND Y significantly better than the similar cola drinks labeled with BRAND X. Barnes-Holmes et al. argued that participants' preference for the two identical cola-based drinks was influenced by the transfer of the emotive functions of the words HOLIDAY and CANCER. These findings were replicated in a later study with children (Smeets & Barnes-Holmes,

2003).

In an experiment by Arntzen, Fagerstrøm, et al. (2016), 16 adult participants were trained on six conditional discriminations (AB and AC relations; OTM training structure) with abstract shapes. After meeting the mastery criterion of 90% correct, the participants were tested for emergent relations, followed by expansion training. D stimuli were trained to A stimuli, and D stimuli were emojis (smiling, neutral, and sour faces). Next, a test for emergent relations was initiated. Finally, the participants were asked to pick one of three identical water bottles with the B stimuli mounted (the preference test). The main findings showed 81% of the participants chose the B1-bottle, the same class as the smiley face (D1).

It is essential to notice that there are several important differences in the procedures between the Barnes-Holmes et al. (2000) and Arntzen, Fagerstrøm, et al. (2016) studies: (a) the first study was a two-choice arrangement, while the second was a three-choice arrangement. (b) the first trained and test for emergence of two 3-member classes, while the second trained and tested for the emergence of three 4-member classes. (c) the arrangement of the preference tests differ; in the first study, the participants tasted the drinks while in the second study the participants chose one of the bottles mounted with abstract B stimuli. (d) quite positive and negatively valenced words were used as A stimuli in the first study, while the second study used less pronounced D stimuli. (c) Arntzen, Eilertsen, et al. (2016) experimented to further examine whether preferences could be influenced by even milder or benignly valenced stimuli. The phases with training on conditional discriminations, expansion of classes, and testing for equivalence class formation were similar to Arntzen, Fagerstrøm, et al. (2016), except that D stimuli were different. For one group of participants (20), the D stimuli were three different weather symbols (sunny, partly cloudy, and rain), while for the control group (20), the D stimuli were three pictures of dikes in the Netherlands. The main findings for the first group were that 55%, 25%, and 20% picked the bottles with B1, B2, and B3, respectively. Finally, Eilertsen and Arntzen (2017) did an experiment with training on conditional discriminations, expansion of classes, and testing for equivalence class formation similar to Arntzen, Fagerstrøm, et al. (2016), except that D stimuli were bank notes with different values (200, 100, and 50 NOK). The main findings were that 62%, 12%, and 25% picked the bottles with B1, B2, and B3, respectively.

From early in 2020 restrictions with respect to social distance because of the pandemic, forced researchers to test out new way to run experiments. Thus, several researchers started to do experiments via an online platform (e.g., Harrison et al., 2021). Likewise, we were forced to stop doing in-person experiments in a laboratory setting and wanted to continue to do experimental work even with rules on social distance. Different digital platforms have been developed, like AnyDesk (https://anydesk.com/en/all-platforms), but we wanted to use an easily accessible program like Zoom, a web conferencing platform to replicate some experiments previously arranged as in-person experiments.

The main purpose of the present experiment was to expand the knowledge about how preferences of identical images of objects were influenced when allocated to different stimulus equivalence classes. In more detail, aimed to (a) to replicate earlier findings by running the experiment via Zoom, (b) to use three different words instead of pictures as D stimuli as in previous experiments with three choices, and (c) to study the effect of the transfer of function on preferences in with three different stimuli sets.

Method

Participants

Fifteen adults participated in the experiment, eight females and seven males. The age of participants varied from 26 to 42 years (an average of 34 years). The participants were recruited through personal contacts. None of the participants had any previous knowledge of emergent relations. The participants had to read through a document in which they were informed that their results would not be traceable, and finally, that they could withdraw from the experiment at any time without negative consequences. They were also informed that the duration of the experiment was approximately two hours and that after the completed experimental session, they were debriefed and could see their results if they wanted.

Setting and Apparatus

The experimental sessions were conducted via Zoom. When recruited, participants were asked to sit at a quiet place for the experimental session and be available for approximately two hours without any disturbance. The participants were given remote control over a customized matching-to-sample software program running on the experimenter's computer (the second author).

The experimental sessions were run on a Huawei MateBook X computer with Intel Core i5. Cameras and microphones were off during the MTS training and testing and on during the pre- and posttest phases. The MTS program registered all responses and the time from the presentation of the comparison stimuli to a response.

Figure 1 shows the abstract stimuli used in conditional discrimination training and tests for emergent relations. Figure 2 shows the stimuli used in phase with the class expansion. Figure 3a, b, and c shows three different stimulus set (SS1, SS2, and SS3) used in the preference test. Each of the three stimulus sets were printed in six different orders on separate sheets of paper. The position of the stimuli was randomized by picking one of the sheets of papers. The cans as shown in Figure 3a (used both in the pre- and posttest) was painted in red and the B1, B2, and B3 stimuli printed on white paper were mounted in front of the cans. The two other stimulus sets are shown in Figure 3b and 3c, three identical cars and three identical mobile phones, respectively. Each of them had either B1, B2 or B3 stimulus mounted on their car hood or on their screen.

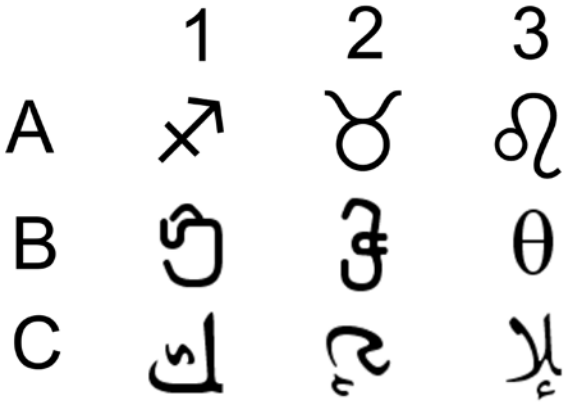

Figure 1. Stimuli Used in the First Part of the Experiment Training AB and AC Relations

Figure 2. Stimuli Used in the Expansion Training

Figure 3a. Stimuli Used in the Pre - and Posttest for Preferences

Figure 3b. Stimuli Used in the Posttest for Preferences

Figure 3c. Stimuli Used in the Posttest for Preferences

Design

We arranged the experiment as a pre-and posttest design. The experiment had six phases: (1) pretest of preferences, (2) MTS training, (3) MTS test of three 3-member classes, (4) Expansion training, (5) MTS test of three 4-member classes, and (6) post-test for preferences. These phases were followed by a debriefing. The dependent variables were number training trials, number of trials in the expansion test, the percentage correct in the MTS test, and the choices made during the posttest.

Procedure

The procedure included 6 phases as illustrated in Figure 4.

Phase 1: Pretest for Preference

Three can images (SS1) had B1, B2, and B3 stimuli, respectively, mounted in front. Combinations of the cans were arranged to control for positions (left, middle, and right), so the experimenter presented one of six pictures with the three images to the participants. The participants were instructed to select one of the cans (SS1), "Which can do you prefer?" The participant had to answer: the left, the middle, or the right can. The experimenter registered the answer. SS2 and SS3 were not a part of the pretest.

Phase 2: Conditional Discrimination Training

The experimenter launched the MTS program, and the participants were told to read instructions for the task. The instructions were as follows:

> Once the experiment starts, there will appear some stimuli on the screen. When you move the cursor on the stimulus in the middle of the screen and click on it, three more stimuli will appear in the corners of the screen. Clicking the correct one will result in the written words "Good," "Accurate," "Excellent," "Well done," or "Awesome" on the screen. The goal is to get as many correct choices as possible. If you click on

the wrong one, the word "Wrong" will appear. In this way you will find out what is right and wrong. After some time, words will not appear anymore, but you should just keep continuing. Remember to always click on the stimulus in the middle before you click on the ones that appear in the corners. Do not use phone or any other objects like paper or pen during the experiment. Good Luck

After reading the instructions the participants were asked if they had any questions. In case of some unclarity the experimenter read the relevant part of instruction again without adding any new information. Once the participant said they were ready to start, both the experimenter and participant muted themselves, and the participant could control the MTS program.

A sample stimulus was presented in the middle of the screen, and a click on the sample stimulus was followed by the presentation of three comparison stimuli that appeared in the corners of the screen, leaving one corner empty. The position of the empty corner changed randomly during the experimental session. If the participant chose the correct comparison stimulus, one of the following programmed consequences appeared: "Good," "Accurate," "Excellent," "Well done," or "Awesome." If an incorrect comparison was chosen, "Wrong" appeared on the screen. The programmed consequences appeared for 1000ms in the center of the screen. After that, an intertrial interval of 500ms followed with a blank screen.

The conditional discrimination training was arranged as OTM with a simultaneous training and testing protocol; AB and AC relations trained concurrently. Thus, baseline training included six conditional relations with the following trials: **A1**/B1-B2-B3, **A2**/B1-B2-B3, **A3**/B1-B2-B3, **A1**/C1-C2-C3, **A2**/C1-C2-C3, **A3**/C1-C2-C3. (The sample stimulus is highlighted in bold, and the correct comparison stimuli are underlined.) Each trial type was presented five times in blocks of 30 trials. When the 95% criterion was met with a 100% probability of programmed consequences, the consequences were thinned to 75%, 25%, and 0% probability if

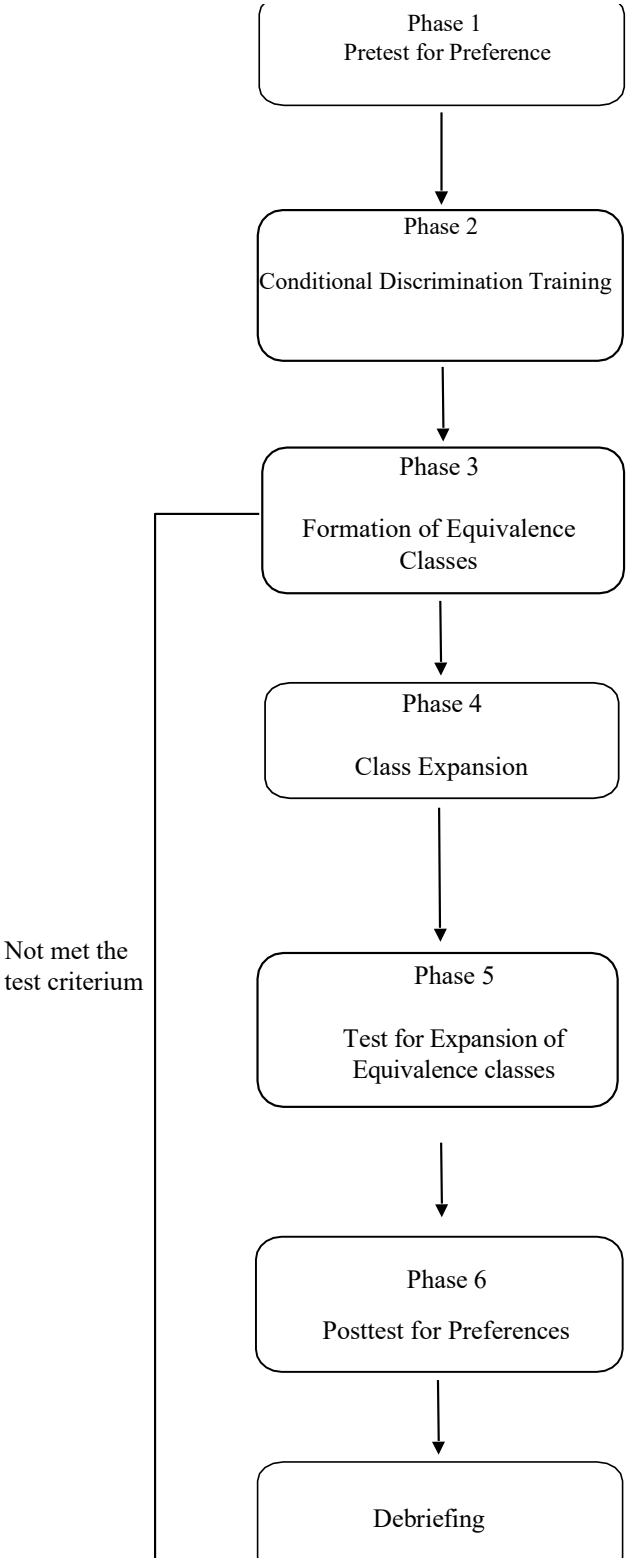

Figure 4. An Overview of the Different Phases in the Experiment

the mastery criterion was met for each block.

Phase 3: Formation of Equivalence Classes

The test for stimulus equivalence was run under extinction conditions. The test included 30 trials of baseline, symmetry, and equivalence relations — 90 trials in total. If the participant achieved 95% or more on the test, they went to Phase 2. In case the number of correct responses was lower than the criterion, the participant was debriefed and thanked for their participation.

Phase 4: Class Expansion

The valenced stimuli D1 (GOOD), D2 (NEUTRAL), and D3 (BAD) were trained to the A stimuli (Figure 2). The training trials were **D1**/A1, A2, A3, and **D2**/A1, A2, A3, and **D3**/A1, A2, A3. Each block consisted of 15 trials, with 5 of each trial type. The mastery criterion was 95% correct responses. Programmed consequences were thinned as described above.

Phase 5: Test for Expanded Equivalence Class Formation

The participants were tested for the formation of three 4-member equivalence classes. The test consisted of 180 trials, 60 baseline trials, 60 symmetry trials, and 60 equivalence trials with trial types as follows: baseline relations **D1**/A1-A2-A3, **D2**/A1-A2-A3, **D3**/ A1-A2-A3, symmetry: **A1**/ D1-D2-D3, **A2**/D1-D2-D3, **A3**/D1-D2-D3, transitivity **D1**/C1-C2-C3, **D2**/C1-C2-C3, **D3**/ C1-C2-C3, **D1**/B1-B2B3, **D2**/B1-B2-B3, **D3**/B1-B2-B3, and equivalence trials **C1**/D1-D2-D3, **C2**/D1-D2-D3, **C3**/D1-D2-D3. **B1**/D1-D2D3, **B2**/D1-D2-D3, **B3**/D1-D2-D3. The formation of three 4-member equivalence classes was defined as a minimum of 95% correct on all tested relations.

Phase 6: Posttest for Preferences

All three stimulus sets included six variations of each. Participants were presented with an image of three cans with the B stimuli mounted in front and the experimenter asked two questions: "Which can do you prefer?" The participant answered: the left, the middle, or the right can. The second question was open ended: "Why did you prefer this can?" The answers for both questions were registered by the experimenter. The presentation of the second and third stimuli, cars, and mobile phones, respectively, was done as for the first stimulus set.

The session ended with a debriefing of the participants in which they were informed about the research area and the objectives of the study. All participants were offered a possibility to see their results. Any questions from participants related to the experiment were addressed.

Results

Number of Trials to Criterion and Equivalence Formation

The number of trials to meet the mastery criterion varied from 150 to 450 with the mean of 272 trials (see Figure 5). Fourteen out of 15 participants formed equivalence classes and the results of those fourteen participants are presented in Figure 6. Percentage correct responding for the 14 participants varied from 96.7 to 100 percent. (The last participant did not meet the test criterion of 95% on the test for emergent relations.) After the test for formation of equivalence classes, participants were exposed to training of DA trials and the participants meet the mastery criterion between 60 and 105 trials with the average of 77 (see Figure 7). In the class expansion phase, all participants formed three 4-member classes (see Figure 8).

Preference Tests

As show in Figure 9, in the pretest for preferences only three participants chose the can with B1 which later was in the same class as the word GOOD (D1), while nine participants chose the can with B3 which was in the same class as the word BAD (D3). Two participants chose the can with B2 which was in the same class as the word NEUTRAL (D2)

In the posttest for the can images with the B stimuli, eight participants chose the can with B1. This shows an increase in preference for cans with B1 symbol from 21% (three of 14) to 57% (eight of 14). Two participants chose B2 both in the pre- and posttests. Only four participants chose B3 in the posttest which is a decrease from 64% (nine of 14) to 28.5% (four of 14).

For the images with the second stimulus set (the cars) and the third stimulus set (iPhones), eight participants chose B1 (see Figure 8). When

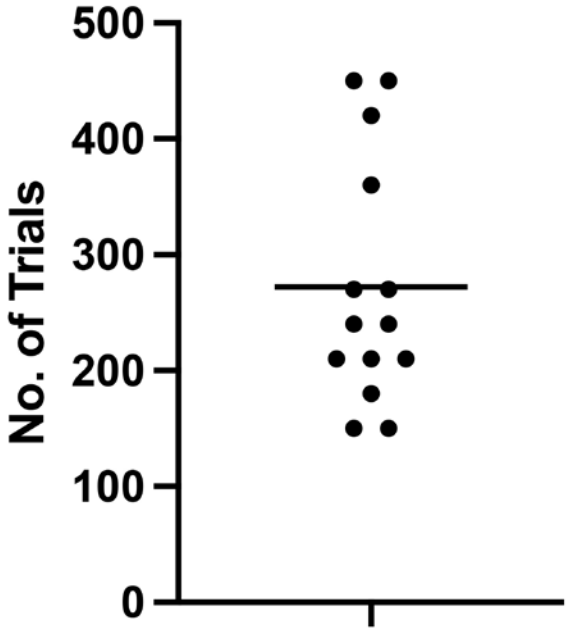

Figure 5. Number of Training Trials to Mastery in the Conditional Discrimination Training in Phase 2 for Each Participant

Note. The horizontal line is the average.

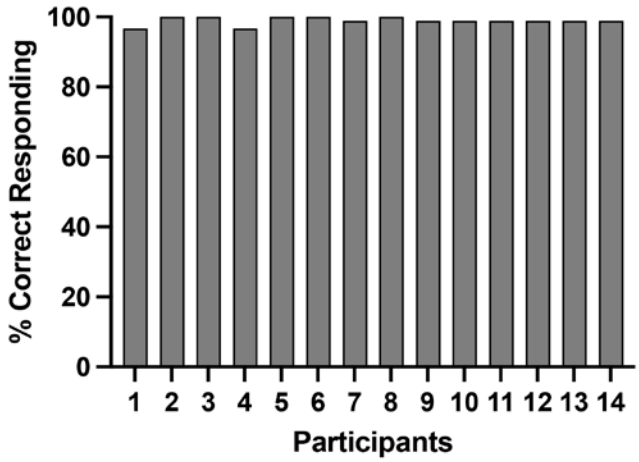

Figure 6. Percent Correct Responding on the Test for the Formation of Three 3-Member Equivalence Classes for Each Participant

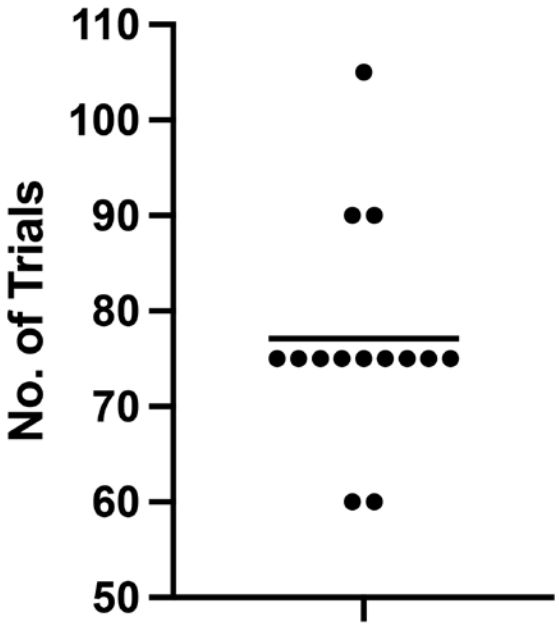

Figure 7. Number of Training Trials to Mastery when Training DA for Each Participant

Note. The horizontal line is the average.

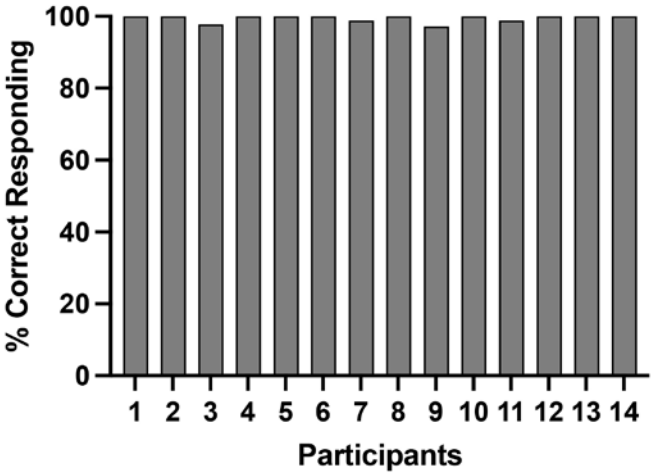

Figure 8. Percent Correct Responding on the Test for the Formation of Three 4-Member Equivalence Classes for Each Participant

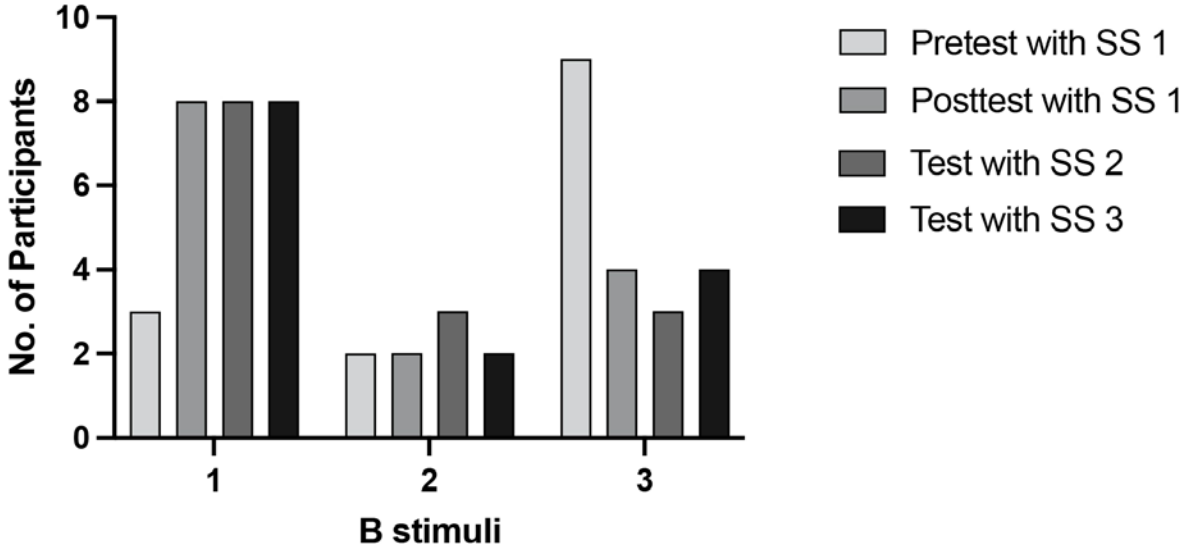

Figure 9. Number of Participants Choosing B1, B2, or B3 in Pre- and Posttest with Stimulus Set 1 (SS1), and Posttests with Stimulus Sets 2 (SS2) and 3 (SS3)

presented with second stimulus set, three participants chose B2 or B3, while for the third stimulus set two and four participants chose B2 or B3, respectively.

In sum of the 42 choices, 24 choices were B1 which means 57% of the total choices.

Discussion

Synopsis

The purpose of the present experiment was to investigate whether the formation of equivalence classes with differently valenced words can influence preferences in choice situations. Because of the restrictions during the COVID-19 pandemic, we had to do the present experiment via an online platform. Thus, one of the purposes with the present experiment was to replicate the earlier studies with the same arrangement done with an in-person data collection in an ordinary lab arrangement. The main findings were that most participants preferred objects associated with the stimulus (B1) that were in the same group as the word "GOOD" (D1).

Number of Training Trials and Equivalence Class Formation

The range of number of training trials in the present experiment in the first part of training and in the expansion training (DA) replicate the findings on training trials from other experiments with same experimental arrangements (e.g., Arntzen, Eilertsen, et al., 2016; Arntzen, Fagerstrøm, et al., 2016; Eilertsen & Arntzen, 2017). The 14 participants who passed the test for the emergence of three 3-member equivalence classes also passed the expansion test with three 4-member classes. The p e rcentage o f p a rticipants (y ield) r eplicates previous experiments using the OTM training structure (e.g., Arntzen & Hansen, 2011; Arntzen & Nikolaisen, 2011).

Experiments In-person vs. Digital Platform

During the COVID-19 pandemic, many experiments transitioned to Web-based platforms, allowing researchers to continue their work despite social distancing measures (Kay, 2023). In the pres-

ent experiment, we conducted the sessions using the Zoom application. The results of the present experiment expanded previous research including a preference test showing a preference for the B1 stimulus Also, other experiments on emergent relations have used web-based platforms to run experiments during the COVID-19 and replicated findings with in-person experimental arrangements (Silveira et al., 2024).

There are many advantages to run experiments on a web-based platform as Zoom. One advantage is that conducting experiments through a digital platform is a useful way to collect data (e.g., Harrison et al., 2021). Another advantage is that researchers and students with limited funding for travel can still participate in experimental work (Kay, 2023).

Furthermore, participants can stay in a convenient location to participate in the experimental session, avoiding travel time and expenses associated with going to laboratory facilities.

However, the experimenter arranging experiments via a digital platform should be aware of a couple of issues. For the first, the lack of control of what the participants are doing in front of their computer at home. It is essential for both participants and the experimenter are placed at locations with stable internet connection.

Extension of the Existing Literature

The present experiment extended the existing literature on preference tests of stimuli after they have become part of equivalence classes. One such extension was the use of words instead of images or symbols as D stimuli. However, Barnes-Holmes et al. (2000) used words but words used in Barnes-Holmes et al. (2000) are unrelated in the sense that they are not opposites, 'holiday' and 'cancer', while the words used in the present experiment are contrasted terms, 'good' and 'bad'. However, Barnes-Holmes and coworkers have used more related words when studying attitudes (e.g., Grey & Barnes, 1996).

Another extension of the present experiment was to test the preference for different types of images than images of water bottles. The important finding is that the participants chose the B1 stimulus across the different images used. The change of preference for cans showed an increase in the preference for cans with B1, no change in the preference for cans with B2 and a decrease for cans with B3. The present experiment showed that same number of participants chose B1 when images were cars and mobile phones as for the cans. Taken together, this finding underline that the classes were extended also in the preference test.

Verbal Reports

The credibility of post-experimental verbal reports has been questioned (Cabello & O'Hora, 2002, 2016). Since the accuracy of verbal reports in reflecting private behavior is uncertain, they should be viewed as correlational in the interpretation of results. Some studies indicate a high correspondence between verbal and nonverbal behavior during conditional discrimination training (Vie & Arntzen, 2017). Conversely, other research shows that some participants exhibit no correspondence between MTS training and their self-assessments of performance, performing almost perfectly in MTS training but verbally reporting their performance as incorrect (Lane & Critchfield, 1996).

There is a need to commenting on the variables influencing the selection of D2 and D3 (NEUTRAL and BAD). Participants provided several details through self-reports during the posttest when asked why they chose specific images. Many who chose the image with B3 did so because they found it the most "symmetrical," "aesthetic," and "minimalistic" symbol. One participant chose the B3 symbol because it is a mathematical symbol frequently used in their work. Interestingly, this participant was the only one to select the B3 symbol in all of the tests. Future studies could benefit from replacing B3 with another abstract shape.

In the present experiment, there is some indication of the correspondence between performance on the preference tests and the self-report data that could have obstructed the arranged experimental manipulation. Four of the participants who chose B3 both in the pre- and posttests reported that they understood that they should chose B1 since it was the same as GOOD, but they chose B3 because they refused to be influenced by the experimental arrangement. This is in accordance with verbal reports from other similar studies in which participants said that they sticked to the same choice

in both pre- and posttests (Eilertsen & Arntzen, 2017). Another challenge that could obstruct the arranged experimental condition are other variables outside the laboratory settings. For example, Arntzen, Eilertsen, et al. (2016) used different stimuli as D stimuli and particularly weather chart symbols, "sunny" (D1), "partly cloudy" (D2), and "rain" (D3) for one group of participants. This study was done in a period with a hot period. One of the participants said he picked B3 because he would like some rain.

Implications

The findings from this experiment and previous experiments on formation of equivalence classes including symbols or words of positive valence could be important for real-world consumer preference situations. dos Santos and de Rose (2018) showed in an experimental situation how equivalence classes including stimuli of different valence could influence preschool children's preference for identical packages of snacks.

Limitations and Future Research

There are several limitations in this study. First, the experimental design, pre- and posttest design, is a quite weak design. In this study all participants were exposed to same training and testing in the MTS format to be able to study the changes of the preferences for B stimuli after the DA training. Thus, there was not necessary with another group of participants exposed to some other type of training and testing. However, a future experiment could include a second group of participants in which D3 was GOOD, and D2 was NEUTRAL and D1 was BAD. The results from such an experiment could exclude any confounded variables related to the use of the abstract shapes in the stimulus set. Also, a stronger experimental design including within-participant manipulation could have been used. Participants could have been exposed to different conditions with different labels as D stimuli. One challenge with such a design is that the performance in one condition could influence the performance on the next condition.

Second, the study is missing scorings of inter-observer agreement of the verbal responses in the preference tests. The main reason for not including such scorings was difficulties ar ranging for a second observer since we used a digital platform for the experiment, and restrictions by General Data Protection Regulations. However, there are no reason that the results should be different since the verbal responses 'left', 'middle', and 'right' are quite easy to score. However, in a future experiment arranged via a digital platform, other ways for the participants to respond in the preference test should be considered. For example, a simple modification to the current setup could involve presenting the stimuli in a preference test as an array on the computer, requiring participants to click on one of the stimuli.

The present experiment did not include any additional measurements like tasting the items in the preference test as previous studies (Barnes-Holmes et al., 2000; dos Santos & de Rose, 2018; Smeets & Barnes-Holmes, 2003). One reason for not including such measurements was because of the arrangement of the experiment via Zoom and the other one due to the type of images used.

Summary

In the present study 14 out of 15 participants showed emergence of three 3-member equivalence classes. The 14 participants went on succeeding training DA relations and the formation of three 4-member equivalence classes. Eight of the participants chose the B1 stimulus as in the same class as GOOD (D1) for all three stimulus sets. When comparing the change from pre- to posttests, three of 14 vs eight of 14 chose the B1 stimulus, while nine of 14 vs four of 14 chose B3 BAD. The present study, conducted on a digital platform, replicated findings from previous in-person experiments (e.g., Arntzen, Eilertsen, et al., 2016).

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