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Affinity's Effect on Choice and Movement

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*Abstract*

**OBJECTIVE.** Occupational therapists offer choice to patients during therapy in order to facilitate occupational performance. Choices are thought to be made based on personal experiences and meaning. This study investigated the influence that affinity (i.e. the amount a person likes or dislikes something) has on the choices that we make and the quality of movement we use when fulfilling those decisions.

**METHOD.** Forty-two right handed females and sixteen right handed males between the ages of eighteen and forty-five from Northwest Ohio participated in this study. Each participant scored his or her level of affinity for eight cans of beverages. Participants experienced both conditions of the experiment in which they were asked to choose between two cans of beverages and then move the can that they chose. One condition had two cans with a large difference in affinity levels; the other condition had two cans with a small difference in affinity levels. Dependent variables included reaction time, displacement of movement, peak velocity, percentage of reach time of peak velocity, and movement units. Data were analyzed using a Wilcoxon Signed Rank *t*-test.

**RESULTS.** When participants chose between cans with a large difference in affinity their reaction time was longer than when choosing between cans with a small difference in affinity ( $p = 0.001$ ). No differences were found between conditions for displacement of movement, peak velocity, percentage of reach time of peak velocity, and movement units.

**CONCLUSION.** Perceived risk seems to be a stronger indicator for the results of this study. Although level of affinity may help to make decisions easier, when risk is perceived in making a decision it may overpower other factors such as level of affinity.

*Literature Review*

Choice is a concept often discussed and encouraged in the field of occupational therapy. Therapists are encouraged to provide choice to patients and in doing so the hope is to create an environment that motivates a patient to put forth his or her best occupational performance possible. Hence, incorporating choice is a strategy to facilitate and enhance engagement and interaction with occupation. The questions can then be raised, "What determines the choices that we make?" and "How does a person decide that one occupation is more meaningful and preferred over another occupation?" The answers are not simple or easily measured. In fact, it is thought that many different factors contribute to the choice making process that everybody uses everyday of their lives. Factors such as past experiences, affinity, and expected consequences, among others, can play important roles in how we make decisions. The focus of this study is to investigate the role that affinity or the degree of "like" or "dislike" one has upon the choices that one makes.

Trombly (1995) suggested that choice is one important way that we can operationalize meaningfulness in occupation. Several research studies have examined whether or not allowing patients to choose some aspect of their occupation will in turn enhance their occupational performance. Rice and Nelson (1998) investigated whether or not there would be an effect in the quality of ironing if adolescent males who were mentally handicapped were allowed to choose a wrinkled t-shirt with a sports-team logo. The task for the participant was to iron a t-shirt that had systematically been wrinkled and dampened. The participant ironed a shirt in two situations; one in which they chose the shirt with the logo and one in which they did not choose the shirt with the logo. The shirt

was weighed immediately before and after ironing and the difference score was calculated to indicate how much water had evaporated. Results showed that more water evaporation occurred in the choice group which indicated that those participants ironed more when they were given the choice of a t-shirt with a sports-team logo than when they were not given a choice. This study concluded that participants are more motivated to perform an occupation when they have input to choosing aspects of their occupational form. Hence, choice enhances occupational performance.

Similarly, LaMore, and Nelson (1992) examined how a participant's occupational performance of painting would be affected by either giving a choice or not giving a choice in the objects that the participant was to paint. Six different ceramic figurines were used in the study. The participant either chose the figurine or was simply handed a figurine to paint within the next thirty minutes. The participants who were given a choice painted more than the participants who were not given a choice. This study also concluded that giving a choice in an occupation motivated a participant to perform more optimally.

Finally, Schroeder and Kopp Miller (2001) replicated the results of the LaMore and Nelson (1992) study. However, Schroeder and Kopp Miller used a different population of participants. Their study focused on adolescents living in residential treatment facilities, whereas the previous study focused on adults with mental disabilities. The supporting results of the later study suggest that the motivation of giving choice in an occupation is generalizable to different populations.

From the results of these studies mentioned above, we can assume that participants chose objects that were in some way more meaningful to them than the other

objects that they did not choose. The meaningfulness of the chosen objects motivated the participants in some way to perform more optimally. This optimal performance is what occupational therapists hope for from their patients as it is assumed to lead to better recovery and increase efficiency of obtaining goals.

Nelson and Thomas (2003) in their Conceptual Framework for Therapeutic Occupation (CFTO) describe the components that contribute to occupational performance. According to this framework both the occupational form, or environment, along with the developmental structure, or the patient's qualities, will lead to a unique meaning that is elicited within a person. This created meaning may then lead to purpose which is the driving force that leads a person to act outwardly do something which CFTO calls occupational performance. According to this framework, meaning is critical in influencing one's occupational performance; such performance includes choice making. Meaning can be described as being the way that a particular person perceives something to be. It is individually specific because of a person's unique developmental structure which is interpreting the world around them thereby giving it meaning (Nelson & Thomas, 2003).

Kielhofner and Barrett (1998) reported that occupational therapists and patients sometimes have different perceptions about life as well as objects within the environment. This in turn, can cause tension in therapy sessions because each has created different perceptions of meaning associated with the therapy session. When the therapist and patient have different ideas about what would be most meaningful to achieve through therapy, goal setting and success within therapy can be greatly compromised. Since meaning is so critical in predicting the success of one's occupational performance and

outcomes of therapy sessions, it would seem important to more closely examine various contributors that affect the formation of meaning.

Preference is one factor thought to have an influence on what an individual finds meaningful. Therefore, it can be concluded that when making choices, individuals will choose objects or situations that they prefer over those that they do not prefer. When objects are preferred and chosen over other objects it is probable that it is because they are more meaningful to the individual. Rice and Renock (2006) investigated the affects that preference had on participants' movement quality and movement time when reaching for magazines. Participants rank ordered magazines prior to the start of the experiment; then the most preferred, neutrally preferred, and least preferred magazine were placed in front of the participant. The participant was asked to reach forward and retrieve the magazine that was located in between the other two on the table. Results found a difference in movement quality and movement time when reaching for magazines with various levels of preference. More specifically, movement was less efficient when reaching for the neutrally preferred magazine. This finding suggests that the decision to move towards the neutrally preferred object took more cognitive effort than when reaching for the most or least preferred objects.

In another design Wu, Wong, Lin, and Chen (2001) investigated the effect that preference had on movement time and reaction time of participants who had a stroke. Participants first selected their most and least preferred beverages. Then, participants were instructed to either pick-up and pretend to drink or pick-up and drink either their most preferred drink or least preferred drink. The outcomes of this study were dependent on the type of stroke the patient exhibited. For patients with left cerebrovascular

accidents and patients with right cerebrovascular accidents without neglect, the reaction time was longest when asked to reach for their most preferred beverage and actually drink it. Their shortest reaction time involved reaching for their least preferred beverage and pretending to drink it. This finding may have occurred because these participants were preplanning their more complex movements before actually moving so that their movement was more efficient. On the other hand, patients with right cerebrovascular accidents with neglect had the opposite outcomes. These participants had a longer reaction time when reaching for their least preferred beverage and pretending to drink it, and their shortest reaction time when asked to reach for their most preferred beverage and actually drink it. These results may have occurred because the patients with neglect may have been affected by the motivational aspect of the task at hand. Therefore, it is thought that faster reaction times occurred because the task of actually drinking the beverage was more rewarding and so it took less time to process. Despite the differences in findings of this experiment, it was clear that preference of the beverage did have an affect on the way that the participant moved.

It seems as though the way we move, the speed at which we move, and the time it takes us to decide to move towards objects are affected by our preference for what we are being asked to move towards. Our preferences for specific objects seem to reflect the meaning that we associate with these occupational forms. If the objects are more meaningful, we have a preference for these objects. Once preference is determined, a more optimal performance can occur when compared to the same occupation being performed with occupational forms that are not as preferred and therefore not as meaningful.



One of the factors reported in CFTO that contributes to meaning is a person's unique developmental structure. "A person's developmental structure consists of sensorimotor, cognitive, and psychosocial abilities and characteristics...influenced both by maturation and by past occupational adaptations (personal experiences)." (Nelson & Thomas, 2003, pp. 99) Very little research has been done to investigate the internal factors of the developmental structure, as well as their impact on creating an individualized sense of meaning. However, Rice and Renock (2006) proposed a flow chart to try to describe how the cognitive process occurs. They used the example of presenting objects to a person and followed how the person would ultimately decide to reach for one of the objects that they have chosen to reach for.

[First, the] array of objects is presented [and] perception of the objects occurs. Meaning is ascribed to each object. Meaning is influenced by the level of affinity for each object. Affinity is formed based on one's likes, dislikes, memories, mood, goals, inclinations, and other cognitive influences. [After meaning is established] preference is formed, which is influenced by the level of affinity for each object. Purpose is formed and involves a decision to act in response to a specific object. [Finally,] movement performance occurs. (Rice & Renock, 2006, pp. 578)

From the time that objects are presented to when the initiation of movement occurs would be considered a person's reaction time. In other words, it is the time it takes to respond to a situation. Reaction time should theoretically be shorter for decisions that are easier for a person to make. This is because there is less cognitive functioning that needs to occur in order for a decision to be made. This would imply that

a person knows what they want fairly quickly after a choice is given. On the other hand, decisions that are difficult for a person to make should result in a longer reaction time. In order to make the decision, more cognitive functioning needs to occur in order to bring up past memories, moods, likes, dislikes, and so forth in order to help make the decision.

Based upon this assumption, the current study proposes to investigate affinity and whether it plays a role in the choice making process. Making decisions based upon one's preference should take into account level of affinity, which in turn means that choosing objects with varying affinity levels should result in varying amounts of reaction time. It is hypothesized that there will be a smaller reaction time when choosing between objects with a large difference in affinity (i.e., like versus dislike) than when choosing between objects with a small difference in affinity (i.e., indifference versus indifference). In addition, based upon findings of previous studies, it is also hypothesized that more efficient movement will occur when choosing between objects with a large difference in affinity (i.e., like versus dislike) than when choosing between objects with a small difference in affinity (i.e., indifference versus indifference).

## Methods

### *Participants*

Based upon Rice and Renock (2006), the SD of 0.5 and a correlation of approximately 0.73, it was calculated, using  $\text{Alpha}=0.05$  and  $\text{Beta}=0.8$ , that an  $n$  of approximately 50 would provide enough statistical power in a repeated measures design to reach significance. Therefore, this current study proposed to recruit 60 participants ranging in age from 18 to 45 years. Fifty-eight participants were actually recruited to participate from the Midwestern Universities and from the surrounding community

through posters, through email, and through word-of-mouth. Of the 58 participants 16 were male and 42 were female. Their mean age was 27.34 years old with the youngest participant being 21 years old and the oldest participant being 45 years old. All participants were right handed. Fifty-seven participants were Caucasian and one participant was African American. Two of the participants' data in the reaction time analysis and three participant's data in the movement analysis were unable to be used due to equipment malfunction.

### *Apparatus*

A four-camera Qualysis ProReflex 3-dimensional system (Gothenburg, Sweden) was used to collect kinematic data at 240 Hz. The movement of the participant's right upper extremity was recorded by attaching a reflective marker to the metacarpal of the index finger. The system then recorded the 3-dimensional spatial coordinates based upon the location of the marker in order to determine displacement of movement, peak velocity, percentage of reach time of peak velocity, and movement units. In addition, the reaction time of the participant was recorded by using an external trigger button that was connected to the computer and cameras to start the data recording as soon as the choice was presented. The eight cans of beverages that were used included 12 fluid oz cans of Pepsi, Diet Pepsi, Coke, Diet Coke, V8 Juice, Nestle Iced Tea, Lemonade, and Fruit Punch. A visual analog scale was used for participants to rate their level of affinity for each of the beverages (Appendix A).

### *Randomization*

This was a counterbalanced repeated measures experimental design in which each participant experienced both conditions of the independent variable. These conditions

included large difference in affinity and small difference in affinity. The participants were randomly assigned to one of two orders of presentation groups. Randomization, through the use of permuted blocks, occurred by using a customized computer software random number generator, and was administered by entering the participant's subject number into the computer software program once they arrived at the laboratory. That is, participants were randomly assigned to one of two possible order of presentation groups (i.e., large difference then small difference or small difference then large difference). This was to ensure that the investigator was unable to have knowledge about which condition the participant was assigned to prior to the session.

### *Procedures*

This study was approved by the University of Toledo's Biomedical Institutional Review Board, IRB #105639. Data collection began in June 2007 and ended in February 2008. Once the informed consent was obtained, the participant was asked to rate his or her affinity, (i.e., the degree of like or dislike) for each of the eight cans of beverages using the visual analog scale. The data collection investigator then used this measurement to determine the individualized rank order of affinity for the beverages. A ruler with millimeter demarcations was used to determine the distance the participant's line was from the polar ends. The four beverages that were used for the trials were the beverage that was disliked the most, liked the most, and the two beverages that were in the middle of the rank order. The beverage that was disliked the most, and had a mark on the analog scale closest to the right side of the continuum, was given a rank order of one. In the same manner, the beverage that was liked the most, and therefore had a mark on

the analog scale closest to the left side of the continuum, was given a rank order of four. Similarly the two beverages in the middle were assigned rankings of two and three.

The data collection investigator entered the participant's subject number into the software program that indicated the order of presentation of conditions for the participant. The set up for each trial was done so that the participant was unable to observe the setup and therefore was unaware of which cans would be presented. On top of the table a plastic file box was turned upside down and clamped securely to the table. The two cans were placed inside of the box. The box was then attached to nylon string and snaked through a pulley system in such a way that when the string was pulled the box opened up and the two cans were presented simultaneously to the participant. The table also contained a Big Red Switch ® (Ablenet, Roseville, MN) in front of the box that the participant placed his or her right hand on prior to the start of the data collection and brought the chosen can back to during the experiment. In addition, behind the box a second Big Red Switch ® (Ablenet, Roseville, MN) was placed to record when the box actually opened. After the setup was complete the participant was seated at the table.

On the participant's right side, the metacarpal of the index finger had a reflective marker attached to it. Depending on the participant's condition assignment either beverages 1 and 4 (i. e., the large difference in affinity condition) or 2 and 3 (i. e., the small difference in affinity condition) were placed in the box, out of the participant's view, four inches apart from each other. The following instructions were read to each participant:

In just a moment I am going to go to the back of the room and pull a string and this lid will open up. You will then see two cans of beverages in front

of you. I would like you look at the two beverages in front of you and then decide which of the two beverages you would like to take home with you. As soon as you have made your decision please reach forward with your right hand and move the beverage that you choose onto the Red Button. Do you have any questions? (If the participant had any questions, particularly procedural-type questions, the data collection investigator answered them.) After you are finished today you will be given a bag to take the beverages that you chose home with you.

Collection time began immediately after the investigator said, "You may begin as soon as the lid opens." At this time the investigator pulled the string that opened the lid to the box that was blocking the participant's view. The kinematic data began recording as soon as the box lid triggered the Big Red Switch ® (Ablenet, Roseville, MN) that was positioned behind the box and ended as soon as the beverage was placed onto the Big Red Switch ® (Ablenet, Roseville, MN) in front of the box. The dependent variables of principle interest included reaction time, displacement of movement, peak velocity, percentage of reach time of peak velocity, and movement units. These procedures were repeated in the same manner for the second condition that the participant had not yet experienced. After the two conditions were completed the participant was given a plastic bag to take home the two cans that he or she had chosen during the experiment.

### *Statistical Analysis*

Data were first smoothed using a dual-pass second order Butterworth filter with a cutoff frequency of 7 Hz. Next, a Gaussian distribution of the data, for each independent variable, was statistically compared to ensure that the assumptions of the t-test were not

being violated. The tests used to indicate normality included the Kolmogorov-Smirnov test, the D'Agostino and Pearson omnibus normality test, and the Shapiro-Wilk normality test (GraphPad Prism version 4.02). These tests found that the data did not pass tests for normality. Therefore, a Wilcoxon Signed Ranks test was used rather than the intended  $t$ -test. Due to the fact that this study was a repeated measures design, a one tailed paired Wilcoxon Signed Ranks test was conducted for each of the dependent variables including reaction time, displacement of movement, peak velocity, percentage of reach time of peak velocity, and movement units. The effect size for each of the dependent variables was also calculated using Cohen's (1988) categories of small effect size being 0.2, medium 0.5, and large 0.8. Finally, the data were analyzed to check for ordering effects.

### *Results*

The results of the Wilcoxon Signed Ranks test for reaction time revealed a significant difference between conditions  $Z(1, 56) = -3.083, p = 0.001$ , with a medium effect size ( $f = -0.62$ ). The mean for the similar condition was larger than the mean for the different condition (See Table 1 for descriptive statistics). The results of the Wilcoxon Signed Ranks test for displacement showed no significant difference between conditions  $Z(1, 55) = -0.545, p = 0.293$ , with no effect size ( $f = 0.14$ ).

The results of the Wilcoxon Signed Ranks test for peak velocity revealed no significant difference between conditions  $Z(1, 56) = -0.702, p = 0.242$ , with no effect size ( $f = 0.13$ ).

The results of the Wilcoxon Signed Ranks test for percentage of reach time of peak velocity showed no significant difference between conditions  $Z(1, 56) = -0.310, p = 0.379$ , with no effect size ( $f = 0$ ). The results of the Wilcoxon Signed Ranks test for movement units showed no significant difference between conditions  $Z(1, 56) = -1.231,$

$p = 0.109$ , with a small effect size ( $f = -0.23$ ). Table 2 contains the Wilcoxon tabular results. The analysis for order effects found no significance for presentation of order.

### *Discussion*

Overall, the primary hypothesis that there would be a smaller reaction time when choosing between objects with a large difference in affinity (i.e., like versus dislike) than when choosing between objects with a small difference in affinity (i.e., indifference versus indifference) was not supported. However, the  $p$ -value for reaction time was less than the stated alpha, meaning that the difference between the means of the two conditions was statistically significant. The direction of the difference was in opposition to the stated hypothesis. Therefore, it was found that participants actually took longer to choose between beverages that were in the large difference in affinity condition and were faster when choosing between beverages that were in the small difference in affinity condition. The question must then be asked why did this occur?

One possible explanation for participants actually having a longer reaction time in the large difference in affinity condition is that the participants were actually affected by the perceived risk of the trial which overshadowed their affinity for the beverages when forming meaning to the situation. Perceived risk can be defined as the amount of danger that a person associates with a particular situation whether it is real or not. In the large difference in affinity condition, a higher amount of risk may have been perceived by the participants because there was a chance that they could have chosen a beverage that they strongly disliked if there was any error in their decision or movements. Choosing a beverage that they did not like could be perceived as a high risk situation since the participant knew that they were taking home the beverage that they chose during the



experiment. Therefore, the cognitive processing of the participants may have taken longer in order to ensure that the correct beverage was chosen, and they were not stuck with a beverage that they strongly disliked. Since the participant was asked not to move until their decision had been made, their cognitive assessment of the perceived risk also increased their reaction time in choosing a beverage presented to them. However, in the small difference in affinity condition a smaller amount of risk may have been perceived by the participants because the beverages had similar amounts of affinity. Therefore choosing one can over the other presented no difference in risk. Either of the cans presented to them in the small difference in affinity condition would have been a safe choice, so less cognitive processing was required prior to choosing a beverage.

Prior studies have been done investigating the effects that perceived risk has on performance during occupations. Rice and Thomas (2000) investigated the effect that pouring hot water versus pouring cold water to prepare a beverage had on the movement of participants. It was thought that pouring hot water would be perceived as a high risk situation whereas pouring cold water would be perceived as a lower risk situation. The findings of this experiment suggested that participants did show statistically significant differences in the way that they moved during these two situations. Participants took more time to move the hot water and pour it to ensure that no hot water was spilled during the performance. This suggests that participants took more care in the time it took them to move to ensure that the perceived high risk condition of pouring hot water did not become dangerous for them. Similarly a study conducted by Fuller, Thomas, and Rice (2006) investigated the effect that the perceived risk, for persons with a cerebrovascular accident, had on movement when transporting raw eggs versus plastic

eggs to a bowl. In this experiment, transporting raw eggs was perceived to be of higher risk than transporting plastic eggs. The results of the study found that participants took longer to transport the raw eggs than they did the plastic eggs suggesting that more time was spent in order to be more cautious during the higher risk condition.

Therefore, it can be concluded that during situations that are perceived to have high risk associated with them people tend to take longer to perform a task in order to be more cautious. This trend was observed in the current study as well. Participants were more cautious in making their decision between the beverages when presented with a beverage that they strongly disliked because the associated risk was higher for the participant. These interpretations suggest that the level of affinity for an object may not be the most influential factor in the choices that we make. This is different than what is proposed in the Rice and Renock (2006) article. Instead, the perceived risk of an occupational form or situation may be more influential than our affinity for objects when making decisions in certain situations. However, this is not to say that the level of affinity for objects does not affect the choices that we make. It merely suggests that in certain situations its influence is combined with other factors such as perceived risk. Making decisions is normally a complex task that draws upon many pieces of information. It may be possible that participants in the large difference in affinity condition were faster in choosing a beverage based on level of affinity but affinity was not the only factor that was cognitively considered when making the decision. Perceived risk may have also been considered which then increased the time to respond to the occupational form presented. Unfortunately, the design of this experiment is unable to

differentiate between the time allotted during cognitive functioning to various pieces of information such as level of affinity and perceived risk.

In addition, none of the results supported the secondary hypothesis that more efficient movement would occur when choosing between objects with a large difference in affinity (i.e., like versus dislike) than when choosing between objects with a small difference in affinity (i.e., indifference versus indifference). Although not statistically significant the trend for increased efficiency associated with the large difference in affinity condition was present with the dependent variable of displacement of movement and peak velocity. The percentage of reach time of peak velocity was virtually identical in both conditions. Interestingly, increased efficiency was associated with the small difference in affinity condition for movement units. Therefore, these data are inconclusive and in general do not support the hypothesis.

Rice and Thomas (2000) found that participants made more adjustments in their movement in order to be more cautious in the risky situation when pouring hot water. In other words, participants were more “inefficient” in order to be more cautious. However, Fuller, Thomas, and Rice (2006) found no significant differences between conditions when investigating the efficiency of movement. This could be because pouring water may have elicited more perceived risk than transporting eggs to a bowl. Therefore, perhaps more complex tasks such as pouring water may have different movement patterns than less complex tasks such as transporting an egg. This consideration could also explain why no difference in movement efficiency was observed for the current study. Perhaps reaching for and transporting a can of beverage does not require enough complexity of movement to elicit differences in movement patterns.

Another possible explanation for the results of the current study can be explained by comparing it to the results of the Rice and Renock (2006) study. This previous study found a significant difference in efficiency of movement when reaching for magazines with varying levels of associated affinity. They found that movement was less efficient when reaching for a neutrally preferred magazine than when reaching for a lesser preferred magazine. The difference between the presentation of the previous research and the current research is that choice was not given to the participants in the previous study as to what they were reaching for. In the previous study, magazines with varying levels of affinity were presented to the participants but they were told which magazine to reach for. Therefore, there was very little time for the participants to cognitively process through the movement before the movement began. In contrast, in the current study participants were specifically asked not to move until their cognitive processing had been completed. Therefore, it is possible that the cognitive processing of participants in the current study affected the subsequent movement during the reach for the can. In other words, perhaps the current participants processed risk and affinity prior to moving which in turn allowed them to use the same “generic” reach pattern for each condition. Therefore, there were no significant differences in how the participants reached. The previous participants when reaching for magazines was not afforded the time to cognitively process the task before initiating the reach and so the cognitive processing was occurring simultaneously with the initiation of movement and was thereby reflected in the kinematic performance of the reach. Therefore, the set up of the experiment and what participants were asked to do during the current study was different from the previous study and may account for the difference in results.

### *Limitations*

An important limitation to note about the current study is that the eight beverages that were chosen for use during the experiment may not have reflected ideal beverages that participants would have chosen in real life as their least and most preferred beverages. The investigators tried to choose beverages that would elicit marking preferences of affinity on opposite ends of the scale. For example some diet colas were chosen as well as regular colas because most people like one over the other. The same is true for Pepsi and Coca-cola drinkers. It was also expected that not all people drink cola and so some of the beverages needed to be non-colas. However, there are many other canned beverages that could have been used in this study but for the sake of the experimental design it was best to choose only eight beverages. It should also be noted that several of the participants expressed that they only drink water and so rating beverages that they did not drink was difficult for them.

### *Future Research*

It would be of interest to conduct future research projects that investigate choice making, perceived risk, and level of affinity. Future projects could look at the efficiency of movement when in a choice condition and a non-choice condition when reaching for objects with various levels of affinity and therefore various levels of perceived risk. This could be useful because occupational therapists are interested in designing an occupational form for clients that is the “just right challenge.” Therefore, incorporating the right amount of choice, risk, and affinity would be important for designing an ideal therapeutic occupation.

*Conclusion*

In conclusion, this study investigated the effects that affinity has on choice and movement. The results of this study suggest that individuals take longer to make decisions when choosing between objects that have large differences in affinity levels when compared to those with small differences in affinity levels. No difference was found in the efficiency of movement between the two conditions. These findings may be beneficial to occupational therapists because creating the correct occupational form is important for encouraging clients to get the most out of their therapy sessions. Interpretation of these findings suggest that when making choices between objects with large differences in affinity levels, perceived risk of the occupational form may affect a client's behaviors more than the affinity level. Therefore, therapists should take care in creating occupational forms with the right amount of perceived risk for that individual.

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## Appendix A

Can of beverage placed here.

On the line below, mark the level of affinity you associate with this particular beverage.

Likable \_\_\_\_\_ Dislikable

Table 1

*Means and Standard Deviations for reaction time (rt), displacement of movement (disp), peak velocity (pkv), percentage of reach time of peak velocity (perc), and movement units (mu).*

Dependent Variable-condition	Mean	<i>n</i>	Standard Deviation
rt 1 (sec)	1.07	56	0.93
rt 2 (sec)	0.61	56	0.47
disp 1 (mm)	99.42	55	58.47
disp 2 (mm)	107.77	55	57.86
pkv 1 (mm/sec)	652.79	56	145.12
pkv 2 (mm/sec)	634.00	56	139.27
perc 1	0.51	56	0.11
perc 2	0.51	56	0.12
mu 1	1.95	56	1.15
mu 2	1.71	56	0.97

*Note: Condition 1 is the high difference in affinity condition; Condition 2 is the small difference in affinity condition.*

Table 2

*Wilcoxon Signed Ranks Test results and Effect Size Results for reaction time (rt), displacement of movement (disp), peak velocity (pkv), percentage of reach time of peak velocity (perc), and movement units (mu).*

Dependent Variable	Mean Rank	Sum Rank	Z	p	d
rt 2-rt 1	32.67	1176.00	-3.083	0.001	-0.62
	21.00	20.00			
disp 2- disp 1	25.18	705.00	-0.545	0.293	0.14
	30.93	835.00			
pkv 2- pkv 1	27.62	884.00	-0.702	0.242	0.13
	29.67	712.00			
perc 2- perc 1	24.59	836.00	-0.310	0.379	0.00
	34.55	760.00			
mu 2- mu 1	18.48	388.00	-1.231	0.109	-0.23
	17.29	242.00			

*Note: Condition 1 is the high difference in affinity condition; Condition 2 is the small difference in affinity condition.*