IDEATION OF FAMILIAR AND UNFAMILIAR ACTIVITIES

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When we are confronted with a problem to which we can not make an immediate response, we resort to the thinking process to find a solution. A kind of trial-and-error procedure in the realm of the abstract is followed until a feasible response appears. For example, if, after we turn on the switch and step on the starter, the family car fails to start, we begin to search for the reason. Could the car be out of gas? No, the gauge registers at the "half-full" mark. Could something be wrong with the ignition system? A superficial examination reveals that all contacts are in working order. Perhaps the switch did not turn all the way. A reexamination of this adjustment shows that this is the source of the trouble. When it is completely turned, the motor starts without further difficulty Now, each one of these suggested solutions, before it was put to a test, constituted what we may call an idea and the whole process which produced it we may call ideation.

One of the important problems in psychology is to determine the nature of this experience we call ideation. It was the purpose of the experiment herein described to give an answer in part at least to this question. In order to start at a relatively simple level, the ideation of motor activities rather than the more abstract processes was chosen for consideration. The study was one of a block of experiments being conducted at the University of Oklahoma as indicated in the paper by Professor Hoisington (1945). The technique, which involved the method of direct observation, was somewhat similar to that described in the paper by Miss Morris (1945). Individuals who had had considerable experience in descriptive work were used as observers. The activities to be ideated were divided into two groups, familiar and unfamiliar activities. Furthermore, as a means of experimental control, the activities were selected so that for each observer there were some which were thorouoghly familiar to him but for most of the other observers these same activities were relatively unfamiliar.

The general instructions to the observer were handed to him in typewritten form and he was asked to read them before beginning the series of observations each day. They were as follows:

"When you have finished reading these instructions, the experimenter will close the door (that is, the door to the Observation Room). After the light in the Observation Room is turned off, there will be a five-second interval to enable you to adjust to the darkness. At the end of this period a visual stimulus will be presented on the screen. This slide will carry specific instructions to imagine something. The stimulus will be presented for a fixed length of time. When the stimulus is removed, you are to carry out the specific instructions presented on the screen. As soon as you have done this, press the signal button at the front of the right arm of the chair. When this signal is given, the overhead light will go on and you can begin to organize yourself to report. When you are ready to report, pick up the dictaphone receiver and begin. Be sure to include a complete description of your sensory experience and also your prestimulus sensory experience".

The Observation Room was then darkened and the direction for ideating the specific activity was thrown on the screen. Following this presentation the observer made his observations and recorded his report on the dictaphone. The activities ideated were "shooting a rifle", "shooting a cannon", "walking down stairs", "falling down stairs", "putting on a coat", "putting on a dress",

"hoeing in the garden", "digging a tunnel", "kicking a football", "climbing Buttermilk Falls", "driving a car", and "flying an airplane."

The descriptions given by the observers for each activity were, in their general nature, quite similar. Invariably, they described an adjustment of the organism in the form of muscular tensions. A term by which we may designate these deeply seated, internally aroused sensory experiences is *kinesthesis*. The locus of the kinesthesis was frequently though not always in the muscle or a group of muscles which would have been involved in the overt performance of the task designated. But in no case was there kinesthesis involving all of the muscles whose functioning would have been necessary to complete the overt task. Often the kinesthesis from the muscles of speech was involved.

One characteristic of ideated acts, as indicated by the reported experiences, was their relatively static nature. Although the overt performances of each activity would have involved some degree of seriation, in few if any instances was there a smooth flowing movement in its ideated counterpart. In most cases, the kinesthesis corresponded to that which would be involved in a static pose. In others, it seemed that only an arm or a leg was furnishing the principal part of the kinesthetic pattern. Here the functioning member might as well have been detached from the body as far as the relation of its muscular tensions to other bodily tensions was concerned.

To illustrate some of the points just emphasized, let us present two descriptive reports on the ideated activity of shooting a cannon. To the observer giving the first of these reports, the shooting of a cannon was a relatively familiar act; to the observer giving the other report, it was quite an unfamiliar act. The report of the first observer is as follows:

"The experience of shooting a cannon is somewhat familiar to me. I have served in all the positions in a squad operating a cannon. Soon after the text was flashed on the screen, I seemed to place myself in the position of the individual who had hold of the lanyard. Standing off about 8 or 10 feet ready to pull the lanyard when the commanding officer gave the command to fire. There were tensions in the right arm, particularly in the forearm, involving the muscles that led down to the fingers and flexed them around the lanyard getting ready to pull. There were tensions in the left leg particularly as though I were standing facing the breech of the cannon with the left foot extended slightly forward. There were tensions in the left side of the neck as though I expected the command from the officer to come from over my left shoulder. There were also tensions in the eyes, in the eye muscles, as though I were trying to estimate the distance I was standing from the breech of the gun. I thought through the process of getting ready to pull the lanyard. My eyes seemed to be scanning back and forth the distance between the gun and me to make sure that I was far enough away to avoid being struck by the gun in its recoil. For some reason or other I was never able to get to the point where I pulled the lanyard. Just standing there waiting for the command which never did come through.

"There were tensions in the throat as though I were expressing in subvocal terms the idea: 'Well, when is he (the officer) going to give the command to fire?' 'How long am I going to have to hold this thing?' 'Why don't we shoot?', or something to that effect.

"There were no reactions, no tensions involved in looking about for the other members of the gun crew. It seemed that I was doing solo work, the only person present. The other members could not be brought into the picture kinesthetically.

"In reporting the experiences above, I have given them in somewhat reverse order. That is, they represent the experiences I had later in the observation. At the very beginning I had a vague feeling that I was standing

or sitting near the position of the gunner. However, my right arm was extended and had hold of the handle on the breech block.

"In all of my reactions to this situation I have been only part man so to speak. That is, my muscle tensions in the right arm were very definitely felt as I stood or sat there and reached out for the breech block. But the rest of my body did not seem to exist. No movement was involved in the opening or closing the breech block, or in examining the lock to make sure that it was fastened. I was just in a 'statuesque' pose, so to speak. Shortly after this, I found myself over on the other side of the trail standing and holding the lanyard as described above."

The report of the second observer follows:

"As in previous observations, there was general preparation for observation and looking. Quite a noticeable strain and pressure in the upper chest and the eye region. A little less pressure in the throat. Again no particular anticipation of any special thing. The words on the screen were perceived very quickly, easily, and readily. Not much bodily activity associated with that process.

"Then I shifted to the task of imagining the activity of shooting a cannon and it was a task. There developed no pressure or tension pattern at all. There was a rather rapid succession of pressure patterns which in a general way meant trying to do a lot of things that I didn't know how to do.

"The first thing, however, was a pressure pattern centering largely in the eyes and throat which meant cannon, the old Civil War type of gun, I think. It was rather a succesion of more-or-less-discrete experiences. One of them was pressure largely in the region of the back. Slight pressure in the arms that in a vague sort of way meant picking up the ammunition rather than for loading the cannon or for shooting it. But the shell was not put into the cannon. There was just that bit of picking it up. Then there was a bit of pressure, this time much more noticeable in the shoulder and running down into the arm. It carried a suggestion of reaching for something although there was no particular meaning of the thing for which I was reaching.

"That was followed by a pressure pattern that meant a sort of general bodily strain. It carried the significance of just standing erect and looking at the thing to see what to do next. Not that I had done anything yet.

"There was no release of general pressure patterns and strains. The stimulus seemed to be much shorter than the previous one for firing the rifle. It was done before I had any definite organized pattern of experience that carried out the instructions. After the stimulus was removed there was some relaxation though not complete. I turned to the next task of getting organized for a report."

Other reports which could be reproduced here if time permitted were quite similar to these just quoted.

We may make the following deductions from the results of this study and others of a somewhat similar nature conducted at the University. First, ideation as a process may be defined as a sequence of kinesthetic experiences resulting from a series of muscular adjustments. These adjustments are initiated, sustained, directed, and held in relationship to each other by some broad determination or purposiveness which can not be immediately satisfied.

Secondly, idea may be defined as a single kinesthetic pattern which for an instant becomes stabilized in this series of shifting kinesthetic patterns just mentioned. The idea thus engendered stands for some object, situation, or other form of experience, or it may stand for a relationship between these items of experience as has been stated by Hoisington (MS). Lastly, an idea

must relate to some perceptual process which preceded it. In the instances where ideation was full and complete, there had been in the background of the observer's experience an adequate perceptual process relating to the activity ideated. In those instances where ideation was more sketchy and incomplete, perception had been inadequate or relatively absent.

In closing this paper it is concluded that a method for studying the ideation of an activity is possible. The results, while not entirely conclusive, because of the limited scope of the problem studied, are quite promising. Furthermore, it is believed that the method will lend itself almost equally well to the study of ideation in more abstract processes such as memorizing, recalling, thinking, and solving abstract problems.

LITERATURE CITED

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