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A **Revista Interamericana de Psicología** é uma publicação da Sociedade Interamericana de Psicologia. A revista se devota á facilitar intercâmbio de informação científica e profissional entre psicólogos das Américas e à promoção do desenvolvimento da Psicologia no hemisfério ocidental. A revista é publicada bi-anualmente e trabalhos em todas as áreas de psicologia são publicados. Artigos eventualmente publicados geralmente caem em uma das três seguintes categorias: trabalhos originais (teórico, empírico, clínico, educacional, profissional ou revisões de menos de 20 páginas); relatórios curtos (500 palavras); e críticas de livros (por convite). Consideração especial se estende a artigos cujos temas se enquadram dentro do âmbito da psicologia inter-americana ou que relatam trabalho resultante de colaboração transnacional. Manuscritos podem ser apresentados em espanhol, português ou inglês. A assinatura anual é de \$20.00 (vinte dólares). Todas as comunicações comerciais, incluindo pedidos de assinatura, mudanças de endereço e anúncios, devem ser dirigidas ao Editor-Gerente. Informações para autores se encontram nas últimas páginas deste número.

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ECONOMISTAS, PSICÓLOGOS Y OTROS

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Esta conferencia, pronunciada en ocasión de recibir el Tercer Premio Interamericano de Psicología en 1981, enfatiza la necesidad de que los psicólogos se tornen mas eclécticos y busquen soluciones creativas a los problemas sociales. Se presenta un ejemplo del uso de la Tecnología Social en la solución de una disputa sindical así como las bases psicológicas empleadas en la tecnología social.

This address, given on the occasion of receiving the Third Interamerican Psychology Award in 1981, emphasizes the need for psychologists to remain eclectic and to seek unusual solutions to social problems. An example of the use of Social Technology in the solution of a labor dispute is presented as well as the psychological principles employed in social technology.

Como ingeniero que trabajó mucho en dicha profesión antes de dedicarse de lleno a las ciencias sociales, he estado frecuentemente expuesto a una pregunta que se me formula con tono de incredulidad: ¿Cómo puede ser que un ingeniero se haya dedicado a las ciencias sociales? Esta pregunta en el fondo encierra un desconocimiento bastante grande de lo que es la ingeniería. Por lo tanto, creo que conviene dar una breve explicación.

La esencia de la ingeniería no es, como muchos creen, las matemáticas o las ciencias físicas. Estas son solo las herramientas que usan los ingenieros para poder cumplir con su misión básica. Su verdadera misión es la de resolver problemas. Ya se trate de levantar la estructura de un edificio, de proyectar las instalaciones eléctricas del mismo, de mejorar las comunicaciones a distancia, o cualquier otra cosa, los ingenieros tienen como respectivas misiones las de asegurar que el edificio se mantenga en pié, que las luces funcionen, que las comunicaciones se realicen y que los demás

problemas se resuelvan. Para cumplir con eso en forma eficaz es que los ingenieros apelan a los principios de física, química o cualquier otro. Es por ese motivo que ellos estudian las ciencias. Pero debo destacar dos aspectos importantes de esa actividad. El ingeniero resuelve problemas *combinando* hallazgos derivados muchas veces de áreas muy diferentes. A él no le interesa tanto si los respectivos investigadores de cuyos hallazgos él hace uso, se entienden entre sí. Tiende a no "casarse" con ninguna teoría o método. Quien lo hace resulta en general ser un ingeniero mediocre o por lo menos muy limitado. Segundo: el buen ingeniero no hace investigación. Trata de mantenerse al tanto de todos los hallazgos en todas las áreas y así poder buscar formas ingeniosas de combinarlos. Que quede claro: al ingeniero, como solucionador de problemas, le interesan las teorías y hallazgos de la investigación solamente en la medida en que éstos pueden serle útiles para resolver los problemas que se le presentan.

Fué esta actitud la que me llevó hace años a interesarme por las habilidades mentales primarias de Thurstone. Cuando ví que muchos de los problemas que surgían en la ejecución de los proyectos de ingeniería podían atribuirse a que quienes debían ejecutarlos no poseían las habilidades mentales necesarias para poder hacerlo. Fué así que comencé haciendo selección de personal. Pero rápidamente me dí cuenta de que solamente con esas habilidades mentales no se resolvía todo el problema. Incorporé algo muy útil proveniente de la ingeniería, o sea la especificación y definición. Cuando se compra un equipo, se toma la precaución de definir con cuidado las características que este debe poseer. Sin embargo, había notado que cuando se seleccionaba a la persona para operar con dicho equipo, la definición de dicha persona, se limitaba a dos líneas. Siempre consideré que las personas son mucho mas complejas y por lo tanto requieren tanto mas atención que los equipos. Pero esta definición, necesitó a su vez un análisis a fondo de las tareas para las cuales se seleccionaba a las personas. El proceso de selección se estaba convirtiendo en un sistema en el sentido de ser una combinación de diversas ideas extraídas de áreas aparentemente no afines. Este concepto de sistema es el aspecto importante de la ingeniería a que me referí al decir que el ingeniero *combina* hallazgos.

Pero en la práctica, resultó que la selección, aún incorporando la especificación, no era suficiente. Era igualmente importante capacitar al seleccionado. Esto me llevó a interesarme en los hallazgos de Pavlov, Skinner y los discípulos de estos. Los hallazgos fueron incorporados a un sistema cada vez mas complejo. Pero aún así no se resolvían los problemas. Quedaban fuera de este esquema los problemas creados por las interrelaciones entre las personas. Para contemplar estos, fué necesario apelar a los hallazgos realizados por la psicología social. Mediante ésta, combinada con lo mencionado anteriormente, fué posible encarar y resolver problemas que hasta ese momento habían sido considerados de difícil solución.

Otro gran paso fué dado al incorporar los hallazgos de la Estructura del Intelecto de J. P. Guilford.

Ya bastante avanzado mi trabajo, fui convidado a dar cursos como profesor invitado en diversas universidades en Brasil, Canadá y Estados Unidos. Sin experiencia como profesor universitario, mis métodos resultaron ser poco ortodoxos. Como mis cursos eran de carácter práctico, decidí no dar exámenes sino asignar a cada alumno la tarea de buscar algún problema de la vida real susceptible de ser resuelto por los procedimientos tratados en clase. No lo había previsto, pero resultó ser una de las ideas mas felices que he tenido. Aunque en general me había ceñido a la situación de trabajo, los alumnos osaron atacar problemas de naturaleza aún no enfrentada. Asistiéndolos, fué posible crear sistemas que en forma eficaz resolvieron numerosos y variados problemas, incluyendo tales como alcoholism, adicción a drogas, obesidad, problemas matrimoniales, de familia, de intolerancia racial y muchos otros. Como pasatiempos, añadí el análisis psicológico de obras literarias y musicales con especial énfasis en Shakespeare y Mozart en quienes se pudo hallar aspectos aún no descubiertos por otros críticos.

Todo esto llevó a lo que ahora denominamos "Tecnología Social". Esta es la rama de las ciencias que, no dedicándose a la investigación, intenta resolver problemas usando hallazgos realizados por los investigadores. En esto deriva su semejanza con la ingeniería. A los efectos de resolver problemas, a nosotros no nos interesa un hallazgo mas que otro. El criterio para la adopción de un hallazgo es si este, combinado con otros, resuelve el problema.

El mundo de los profesionales universitarios. En nuestros países, los profesionales universitarios han jugado papeles importantes si bien a veces bastante dispares. En una época eran los abogados los preponderantes, pues formulaban e implementaban políticas al redactar constituciones, leyes, códigos, etc. Hoy el mundo parece ser mas bien el de los economistas.

Los economistas han formulado una serie de leyes de la economía así como de procedimientos que ostensiblemente pueden explicar los fenómenos económicos y de allí los sociales. No solo pretenden prever el futuro, sino que asisten a la toma de decisiones importantes que afectan a poblaciones enteras. Sin embargo, a pesar de que los economistas parecen estar de turno en este momento, hay cada vez mas señales de que éstos están teniendo serios problemas. Voy a referirme a algunos de ellos y luego, al papel importante que creo pueden tener los psicólogos en la solución de los mismos.

Los problemas de los economistas. Son numerosas las críticas que se han formulado y se siguen formulando en forma creciente a las explicaciones y predicciones de los economistas, aún por especialistas en la materia y por quienes han acudido a ellos en procura de asistencia para resolver problemas que parecerían ser de su incumbencia. Las objeciones mas

comunes se refieren a la falta de consenso entre los diversos economistas en sus explicaciones y predicciones, a la existencia de diversas "escuelas" mucha veces en pugna hostil entre sí, a las "modas" que hacen que en un momento sea Say quien predomina para luego ser suplantado por Keynes y eventualmente por Friedman. Esto recuerda al epigrama de Montaigne según el cual lo que sirvió anteriormente como artículo de fé es la fábula de hoy. En algunas encuestas se ha constatado que menos del 4% de los industriales importantes se apoyan en los economistas para la toma de decisiones importantes sobre el porvenir económico. Quizás sea por esto que los economistas se han dedicado a asesorar países en vez de empresas.

Se dice que recientemente un alto funcionario austriaco respondió a la pregunta de porqué Austria tenía tan bajo nivel de desempleo y de inflación, contrastando con los demás países, diciendo que la razón era que había exportado a todos los economistas. Este juicio es un poco exagerado, pues Joseph Schumpeter, renombrado economista Austriaco que fué Ministro de Hacienda de Austria, predijo muchas de las cosas que ocurren hoy, como señalaré mas adelante.

Uno de los mas serios problemas de la economía es un defecto del que padecen la mayoría de las leyes y afirmaciones de esta disciplina. Casi siempre son formulados con la advertencia latina "ceteribus paribus" o sea, "suponiendo que todo lo demás permanece incambiado." En las ciencias físicas así como en los experimentos en los que se pueden controlar las variables, esto puede admitirse. Aún cuando se resuelven problemas en ingeniería, estas suposiciones son admitidas, siempre que se esté consciente de la magnitud del error. Por ejemplo, al calcular la resistencia a una carga de una viga de hierro, se supone que no se deforma con la carga. En realidad, tal deformación existe, pero es tan pequeña (alrededor del 2 por mil de la longitud) que la configuración geométrica es casi igual a la de la viga sin carga. Pero en los cálculos de los puentes colgantes, inicialmente hecho suponiendo que la deformación era también despreciable, se cometieron errores muy serios, como en el caso del puente de Williamsburg en New York. Esto fué modificado cuando Melan y Moisseiff introdujeron las matemáticas mucho mas complejas que admiten la deformación cuando se calculó el llamado puente de Manhattan próximo al arriba mencionado.

Però en el complejo mundo de la realidad social, el abuso de "ceteribus paribus" puede llevar a formular "leyes" que ni remotamente se acerquen a la realidad y que por lo tanto no son útiles para resolver problemas.

En análisis de los postulados. Cualquiera que sea la actividad que se estudie, es muy importante hacer un análisis crítico de los postulados sobre los cuales ésta se basa. Por magnífico que sea el edificio que se construya, si las bases están equivocadas, el edificio se derrumbará. Aprendí muy bien esto cuando como estudiante en la universidad añadí al curso de ingeniería, estudios de matemáticas puras. Una de las materias trataba de la geometría no-Euclideana. Durante casi 2,000 años la huma-

nidad dedujo teoremas basados en los postulados de Euclides. Uno de estos establece que por un punto en el plano es posible trazar una sola recta paralela a una línea dada. Se consideraría demente a quién dudase de una verdad tan obvia. Sin embargo, a principios del siglo pasado, dos jóvenes tuvieron independientemente y simultáneamente la misma idea. Lobachevsky en Polonia y Bolyia en Hungría formularon la pregunta: "Que pasaría si tomamos como hipótesis que se pueden trazar por un punto en el plano, *dos* líneas rectas que no toquen a una recta dada?" Ambos dedujeron una geometría perfectamente coherente apesar de que sus teoremas parecen contradecir al sentido común. Por ejemplo, uno de ellos establece que el lugar de los puntos equidistantes de una línea recta es una curva. Este y muchos otros nos parecen absurdos. Pero gracias a los esfuerzos de estos dos matemáticos, mas los del alemán Riemann y los Italianos Ricci y Levi-Civita, Einstein pudo formular su teoría de la relatividad generalizada que tanto influye en el pensamiento moderno. Vale la pena pués estudiar los postulados que muchas veces son tenidos como verdades inmutables pero que pueden estar equivocados.

Los postulados de los economistas. Aunque existen divergencias serias entre las diversas escuelas de economistas, todas están de acuerdo con ciertas premisas básicas. Noto dos aspectos importantes de dichas premisas. Una de ellas es que nadie parece haberse dedicado a establecerlas en forma explícita. Otra es que muchas de esas premisas o hipótesis que muchas veces se entrometen en forma no muy explícita, violan principios del comportamiento humano descubiertos por los psicólogos en sus investigaciones. Por consiguiente, la psicología con la que se manejan los economistas no solo es incompleta sino que además es deficiente. Ya, hace 25 años, Ross Stagner en un admirable libro que tanto ha influido en mi trabajo y pensamiento, alertaba sobre los escasos e incompletos conocimientos de los economistas en materia de psicología. Esto no ha cambiado. Por consiguiente, no es extraño que si se formulan predicciones sobre el comportamiento económico, que es solo un aspecto del comportamiento humano, y estas se basan en hipótesis equivocadas, las predicciones no lleguen a cumplirse. He analizado los postulados de los economistas y he hallado serias fallas. Mencionaré algunas de ellas.

Hay una ley de la economía llamada la "ley de la demanda." Esta expresa que, "ceretirbus paribus," cuanto mas bajo el precio, mayor será la venta. Esta ley, quizás a veces se cumpla en condiciones muy especiales, pero comienza por ignorar el fenómeno de la presión social estudiado por Asch, Crutchfield, Gerard y otros y según el cual, cuanto mas observa una persona que otros cometen alguna acción, mayor es la tendencia a imitarlos. Por lo tanto, muchas veces se observa que, cuanto mas sube el precio de un artículo porque muchos lo están comprando, mas tratan los demás de comprar, lo que hace que los precios sigan subiendo. Los economistas se desembarazan de esta objeción diciendo que se trata del efecto "snob", pero el hecho es que es real y muy común.

Otra ley, la de utilidad marginal, prevé que cuanto mas obtiene una persona de un artículo o servicio, maenos valora a los subsiguientes a los que tiene acceso. Según esto, la persona estará menos dispuesta a pagar el mismo precio para obtener mas unidades del mismo bien. Pagará menos pues por los subsiguientes. Al economista Marshall, que fué quien formuló dicha ley, se le objetó que el amante de la música no se harta de oír su quinto o sexto concierto sino que al contrario estará dispuesto a pagar aún mas por el vigésimo. Marshall respondió a esa crítica diciendo que ésta no tenía valor pues el oído del melómano, muy ejercitado ahora, no era lo mismo que al principio (Brignone, 1980). Dejo a los psicólogos la defensa de la validez de la crítica así como la contestación al absurdo de la respuesta.

Los economistas han trabajado mucho con el concepto de utilidad, reduciendo todo a factores económicos. Esto les lleva entre otras cosas, a trazar las llamadas curvas de indiferencia, según las cuales existen combinaciones de porcentajes diversos de ciertos bienes que son totalmente equivalentes para los consumidores. Estas curvas, sin decirlo en forma explícita, presuponen, como también presupone mucho del pensamiento económico, que las preferencias son transitivas. Quien ha trabajado con el método de pares comparados para establecer escalas de actitud sabe muy bien que esto no es cierto. Si lo fuese, Thurstone no habría tenido que inventar dicho método para establecer escalas. Amos Tverski demostró que en ciertas circunstancias, mucho mas comunes de lo que se pueda imaginar, las preferencias no sólo no son transitivas sino que es posible hasta prever en que sentido dejan de serlo (Tverski, 1969).

Los economistas ignoran también el fenómeno de las diferencias individuales, uno de los aspectos fundamentales de la psicología, y por lo tanto pretenden crear “curvas universales” que lamentablemente nunca han dado resultado.

Soluciones no rutinarias. Sin detenerse demasiado a analizar la validez psicológica de sus postulados, no obstante los economistas han construído modelos matemáticos cada vez mas complejos en el afán de poder hacer predicciones del futuro económico. Cuando uno de estos modelos demuestra haber fracasado, entonces surge uno nuevo aún mas sofisticado. Pero pese a esos modelos tan sofisticados que presentan, llegado el momento de actuar, los macroeconomistas recurren siempre a las mismas fórmulas. Estas son: modificar la emisión, la tasa de interés del dinero, los impuestos, el presupuesto o la libertad de las transacciones internacionales. Parecería que les es imposible salir de estos esquemas simples. Esto recuerda la sátira de Moliere respecto a los médicos en *Le Malade Imaginaire* quienes frente a cualquier enfermedad, paciente o recaída, invariablemente recetaban “Clysterium donare, postea seignare, ensuite purgare.” (Dar lavaje, luego sangría y después purgar).

Con un poco de ingenio, pueden surgir soluciones diferentes, especialmente si se toma en cuenta que los fenómenos no son solo económicos sino

económico-sociales. Les relataré una que se me ocurrió, no siendo economista, pero que logré fuese adoptada por un organismo público en el Uruguay hace años. El objeto era el de reducir los gastos de energía eléctrica a las familias de pocos recursos.

El sentido común económico nos dice que los primeros kilowatt-horas de energía (KWH) suministrados al cliente son muy onerosos para la empresa que los genera y distribuye. Los gastos fijos de mantenimiento de instalaciones, cables, medidores, hacer las facturas, cobrar, etc. son los mismos si el consumidor gasta mucho o poco. Por tal motivo, los primeros KWH consumidos deben cobrarse a precios muy superiores a los subsiguientes. Es tradicional que las tarifas comiencen con un precio elevado para los primeros KWH consumidos reduciéndose gradualmente el precio por unidad a medida que el consumo aumenta. Se llega así a precios muy bajos para los grandes consumidores. (Esto fué naturalmente antes de la actual crisis de energía). Este tipo de tarifa obedece a una impecable lógica económica. Pero si bien es excelente lógica económica, es pésima lógica social, pues se cobra un precio promedio muy elevado a los pequeños consumidores que presumiblemente son los mas modestos. En cambio el precio resulta relativamente bajo para quienes consumen mucho y por lo tanto gozan de mayor bienestar.

Al analizar las cifras de consumo, y teniendo esto en cuenta me dí cuenta de que el 30% de la población, los que representaban la parte mas modesta, consumían menos del 9% del consumo total. Por lo tanto, se les podía hasta regalar la energía sin aumentar mucho a los que estaban en buena posición. No propuse nada tan drástico. Pero fué posible crear una tarifa en la que las cuentas de los mas modestos se redujeron en 50% mientras que los grandes tenían aumentos de alrededor de 5%. Estos ni se dieron cuenta del aumento pues el 5% era menor que las variaciones normales en sus consumos. Pero los modestos estaban entusiasmados. Muchos señalaron a los cobradores que debía estar equivocada la cuenta pues nunca habían pagado tan poco. Se notó un aumento inmediato de consumo en esos pequeños consumidores que aprovecharon la coyuntura para mejorar su bienestar.

Este principio podría adoptarse para el consumo de agua, gas y cualquier otro servicio público. Cito este caso como muestra de como, con un poquito de ingenio pueden surgir ideas otras que las gastadas de "clysterium donare postrea seignare. . ."

La combinación de la económica con la psicología. Pero mi tésis no es que los ingenieros o los psicólogos se pongan a crear en materia económica. Puede que si lo hacen, tengan algún éxito limitado como el que acabo de describir. Pero esto sería muy limitado y no del mucho mayor alcance que lo que propongo. Es cierto que los economistas no han logrado mucho éxito en la solución de los grandes problemas sociales. Pero también es cierto que, pese a la gran actividad desplegada por muchos psicólogos, la psicología tampoco ha podido resolver estos problemas. Tam-

poco lo han logrado los ingenieros. Los problemas sociales continúan agudos en todo el mundo.

Esto se debe a que ninguna disciplina por si sola puede pretender tener la llave mágica. Ninguna de ellas posee toda la verdad, y si bien he señalado serias fallas en los economistas, esto de ninguna manera debe interpretarse como que hay que descartar de plano todas sus ideas y sus leyes. Bien interpretadas y usadas, pueden ser muy valiosas. Creo firmemente que los problemas serán resueltos cuando seamos capaces de integrar la información obtenida de *todas* las áreas del conocimiento. En la misma forma en que fué creada la tecnología social integrando hallazgos de diferentes ramas de la psicología con algunos conceptos derivados de la ingeniería, creo que algunos conceptos de la economía pueden ser integrados a la psicología para crear soluciones de mucho mayor envergadura.

Pero no vengo a proponer propuestas vagas sobre lo que se podría hacer. Si hago este planteamiento, es porque la idea ya ha sido puesta en práctica. Puedo hoy describir cómo esta combinación pudo resolver una seria incipiente disputa en materia salarial entre una empresa y los representantes de sus funcionarios. Pero antes de entrar a describir el problema y como se resolvió, daré algunas explicaciones sobre los principios empleados.

Las leyes de la oferta y la demanda. Ya he hecho mención a la ley de la demanda, uno de los puntales de toda teoría económica. Según esta ley, cuanto mas bajo el precio, mayor será la venta. Esta ley presupone una hipótesis errónea. Según ésta, se supone que una modificación en el precio de un artículo trae aparejada una modificación en la actitud de los compradores. A su vez, una modificación de la actitud, trae aparejada una modificación de la conducta. La psicología ha demostrado que esta inferencia es errónea. León Festinger dijo: "... parece claro que no podemos suponer con ligereza que existe una relación entre el cambio de actitud y el comportamiento" (Festinger, 1967). Linn estudió las actitudes de muchos sujetos hacia determinada minoría y halló que los individuos cuyas actitudes habían sido medidas, no actuaban de acuerdo con las mismas llegado el momento de actuar (Linn, 1965). No quiero decir con esto que la ley de la demanda sea totalmente falsa. Si la tomamos en vez de ley de comportamiento como una de probable cambio de actitud nos puede resultar sumamente útil. Lo mismo puede decirse de la ley de la oferta según la cual, cuanto mayor es el precio, mayor será la fabricación. Si tomamos también a esta ley como determinante de probables actitudes, veremos que cuanto mayor sea el precio, mas positiva será la actitud hacia determinada forma de actuar.

Los principios psicológicos empleados. Pero para resolver el caso que voy a describir, era necesario incorporar a la solución varios principios derivados de la investigación en psicología. Mencionaré alguno de ellos.

1. Los conceptos derivados del modelo de la estructura del intelecto de J. P. Guilford (Guilford, 1967). Estos fueron fundamentales para aquilatar las probables formas de razonar de los diversos actores frente a los proble-

mas planteados. Hemos podido constatar que cuanto mas se sabe sobre la constitución intelectual de un grupo, mejor funciona dicho grupo.

2. La disonancia cognoscitiva de Festinger y en particular el hallazgo de Festinger y Carlsmith según el cual una persona que expresa una opinión contraria a lo que piensa, tiende a modificar su creencia para ponerla mas de acuerdo con lo expresado (Festinger, 1957; Festinger & Carlsmith, 1959).

3. Los trabajos sobre proximidad y otros (Hall, 1965).

4. La reactancia de Brehm (Brehm, 1966).

5. Los trabajos sobre dinámica de grupos y en particular lo realizado por Christie con respecto a la deliberación de jurados (Cartwright & Zander, 1968; Christie, 1973).

6. Los trabajos de Sherif sobre el conflicto ganar-perder (Sherif & Sherif, 1969).

7. El principio de la prioridad de la percepción sobre la realidad objetiva de Stagner según el cual la misma realidad objetiva puede dar lugar a percepciones de la realidad que son marcadamente diferentes dependiendo del rol económico del individuo que percibe (Adaptado de Stagner, 1956, pp. 63-69).

El problema. Describiré ahora la situación imperante planteada por el problema salarial. Para proteger la identidad de los actores he alterado totalmente las cifras y otros elementos dejando en pié solamente las circunstancias fundamentales.

Una empresa que realiza un servicio importante para el público posee diez establecimientos independientes. La situación económica no es muy buena y es evidente que hay que invertir en la modernización de las instalaciones. Esta inversión es costosa. Hace tiempo se ha firmado un contrato laboral con los representantes de los trabajadores y de la empresa, que cubría todos los aspectos con excepción del salario básico. La divergencia de opiniones sobre el salario es seria y por tal motivo, como suele ocurrir a menudo, se había decidido relegar tan espinoso asunto para una instancia futura.

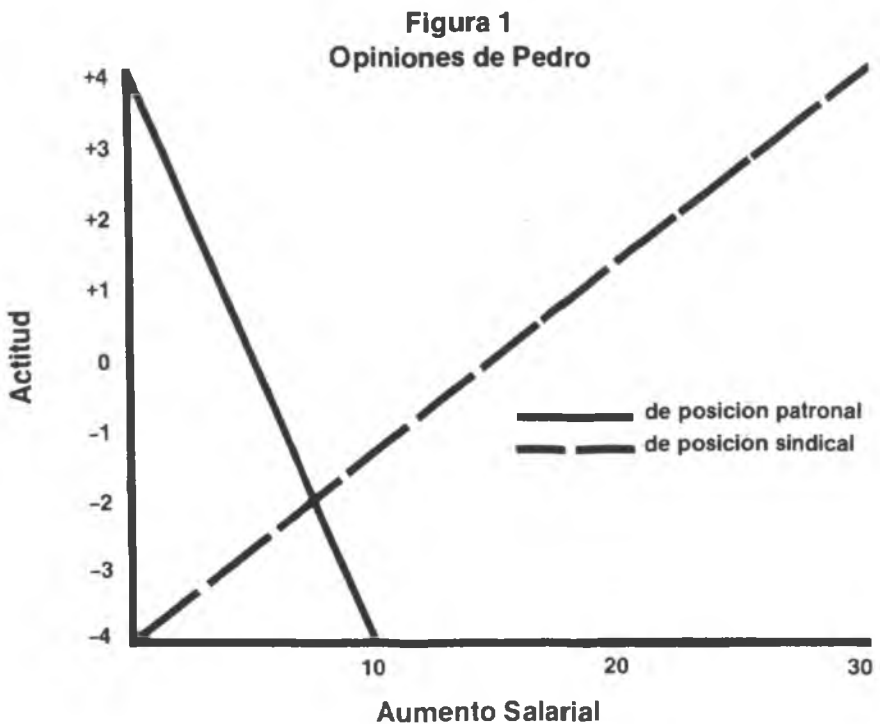
Un alumno avanzado de administración de empresas, que actuaba como consejero sindical y que poseía varios años de experiencia en este oficio, me puso en conocimiento del problema. Las partes ya se había reunido una vez y se hallaban muy lejos de poder llegar a un acuerdo. La parte laboral había planteado una solicitud de aumento del salario básico de 30 unidades. A esto, la parte patronal había dado la clásica respuesta de que no podía dar aumento alguno dado que la situación económica era mala y que, además, había que invertir mucho en la renovación de las instalaciones. Las dos partes se hallaban pues en la situación harta conocida para quienes han actuado en este tipo de actividad.

Con el consejero sindical, a quién daré el nombre de Pedro, estudiamos la situación. Decidimos que, dado que siempre se trata de un remate o regateo, la patronal, apesar de su rotunda negativa a conceder aumento alguno, parte de una estrategia muy común, estaría no obstante dispuesta

a dar algún aumento. Por otra parte, Pedro reconocía que la parte laboral había iniciado la negociación con un pedido de aumento que sabía era exagerado, pero del que se disponía de algún margen para poder negociar.

La solución. Decidimos establecer las posiciones de las dos respectivas partes en términos de oferta y demanda, o mas bien como dije antes, de actitudes hacia las propuestas extremas y las posibles intermedias. Para esto, fué muy útil usar los conceptos derivados de la economía modificados, como he dicho, para reflejar no los posibles comportamientos sino las actitudes. Pedro estimó lo que él creía sería la reacción de cada una de las dos partes con respecto a las diversas propuestas posibles. Se usó para esto una escala del tipo Likert en la que +4 representa una actitud muy favorable reduciendo hasta -4 cuando la actitud es muy desfavorable.

Es importante notar que a esta altura lo que se hizo fué establecer las actitudes que Pedro estimaba serían las de las partes. Es concebible que estas, aunque próximas a la realidad, no sean totalmente correctas. Los resultados fueron expresados en forma gráfica como puede verse en la Figura 1.



Como puede apreciarse en la Fig. 1, la línea de demanda, o sea la de la actitud del personal, es -4 si no se otorga aumento alguno. Pero si el aumento es de 15 unidades, será aceptable. Naturalmente que el personal quedará aún mas satisfecho si el aumento es mayor. En la misma forma se aprecia que la patronal no se opone a un aumento de 6 unidades. De ser cierto este análisis, las partes no se hallan tan distantes como podría parecer según los planteamientos iniciales respectivos. Parece factible la posibilidad de llegar a un acuerdo.

Dada la proximidad de las posiciones, Pedro tuvo un primer impulso de ir a las partes y mostrarles este resultado. Pero inmediatamente vimos que si se intentaba esto, cada una de las partes experimentaría reactancia y desearía reestablecer su libertad de opinar como se le antojase, negando que esto representase su verdadera manera de pensar.

Como Pedro conocía a los actores bastante bien por haber actuado anteriormente con ellos, pudo categorizarlos en términos de las habilidades mentales de Guilford. Se pudo así prever cuales eran los probables razonamientos de los diversos actores frente a los diversos planteamientos. También, de acuerdo a los estudios de Christie, se pudo prever cuales serían las probables interacciones.

Conocida esta información, se estableció una meta. Esta se definió como la de obtener un acuerdo salarial que fuese adecuado para el personal sin comprometer la posición competitiva de la empresa y que además se pudiese lograr en tiempo breve para que el personal comenzase a gozar de inmediato del nuevo beneficio. Era imperativo obtener una buena solución sin tener que pasar por los duros combates que generalmente caracterizan a esta clase de tratativa y que dejan resentimientos amargos que crean serios problemas para la interacción futura.

Definida la meta, se decidió que se consultaría a las partes separadamente. Lo normal en estos casos es que cada una de las partes considere a la otra como enemiga a quien se debe derrotar. Casi siempre deriva en un conflicto tipo ganar-perder estudiado por Sherif. Ambas partes perciben a la lucha como un hecho inevitable. La tecnología social, en cambio, ofrece soluciones muy diferentes a las que hemos heredado de nuestros antecesores de la edad de piedra y de las que, pese a los enormes avances tecnológicos en otras áreas, hasta ahora no hemos sabido librarnos.

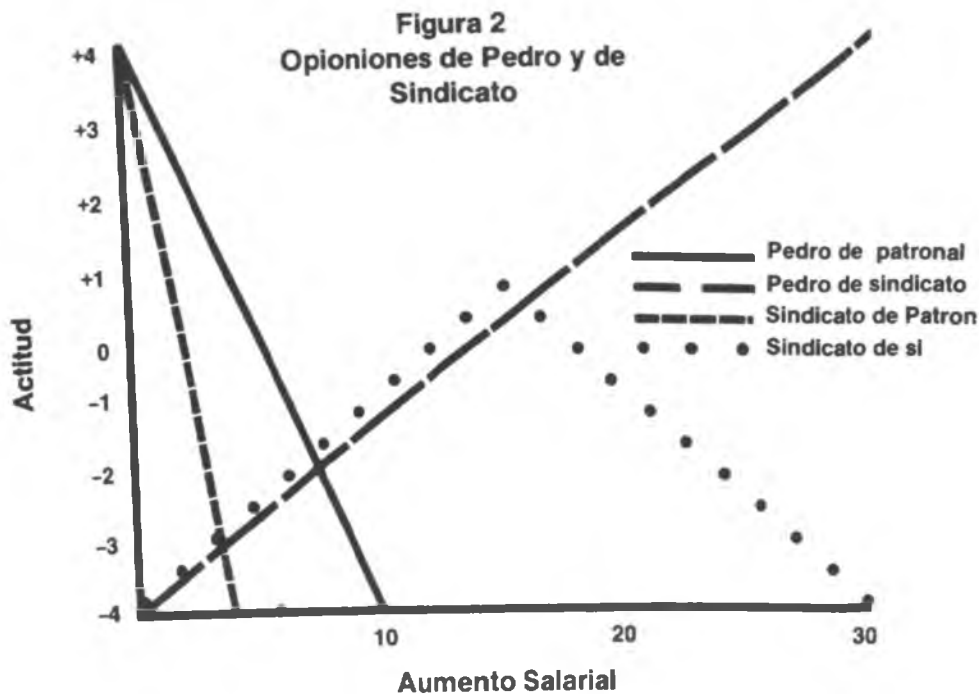
Implementación de la solución. Las dos partes se reunieron como es de costumbre en lados opuestos de una mesa. Conforme a la estrategia previamente establecida, Pedro solicitó a la parte patronal un cuarto intermedio a fin de consultar al sector laboral y usar el pizarrón que había instalado previamente a la cabecera de la mesa. La patronal accedió y se retiró a otra habitación. Pedro pidió a algunos representantes de los trabajadores que se trasladasen al otro lado de la mesa a fin de que tuviesen mejor visión de lo que él escribiría sobre el pizarrón. Cuatro de ellos accedieron. De acuerdo con lo previsto por la investigación sobre la proximidad, los cuatro se sentaron en sillas no contiguas. Quedaron pues espacios libres a

ambos lados de la mesa, cosa con la que se contaba para la acción posterior. Al regresar luego los representantes patronales, estos se sentarían a ambos lados de la mesa en los sitios vacantes. Se mezclarían así los trabajadores con ellos. En esta forma se daría el primer paso para transformar la mentalidad de combate en una de colaboración general en la solución de un problema.

Retirada la patronal, Pedro solicitó al grupo laboral que definiese la meta que se deseaba lograr para esta negociación. Para esto, usó los métodos de solución de problemas en grupo (Varela, 1971). Es importante destacar que, según este método, el líder nunca impone su solución, sino que trata de que el grupo funcione en la forma mas eficiente posible usando al máximo la habilidades mentales y conocimientos de los integrantes. La solución debe ser la que el grupo considere la mas eficaz consecuente con los valores de sus integrantes. Pedro intentó primero obtener una definición de la meta y logró una que se asemejaba a la inicialmente propuesta por él. Pero el grupo añadió algo muy importante. La meta no debía incluir la posibilidad de ir a la huelga.

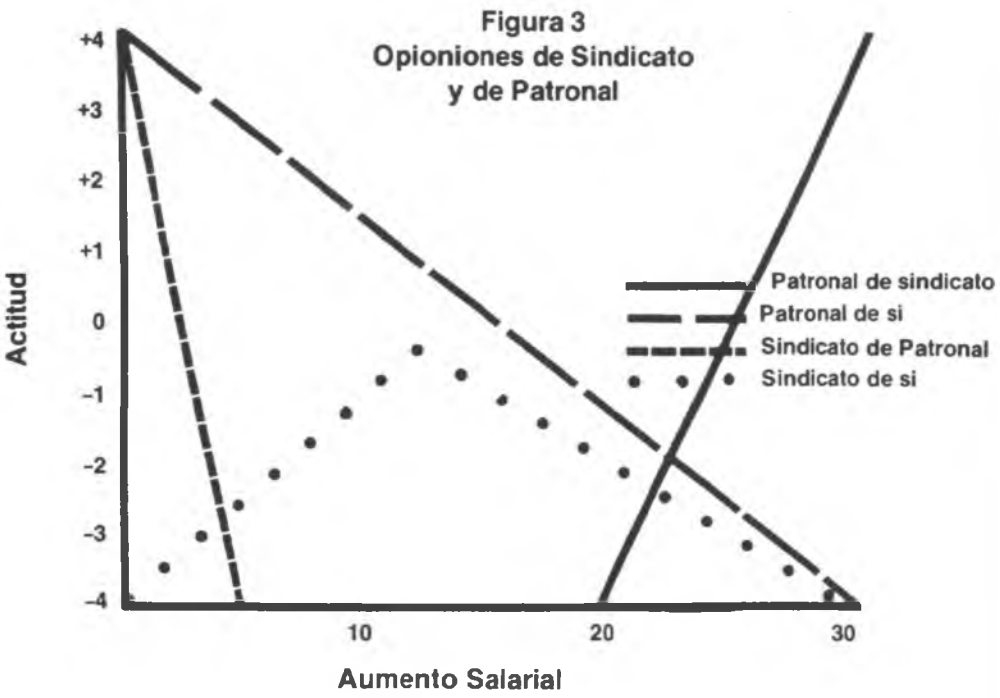
No entro en detalle para mostrar cómo Pedro se valió de la disonancia, reactancia, dinámica de grupo, percepción de Stagner, etc. para elevar el nivel de la solución del grupo. El grupo expresó su creencia de cómo estimaba reaccionaría la patronal frente a las diversas propuestas salariales. También expresó la opinión de cual sería la posible reacción de los funcionarios frente a esas mismas opciones.

Estas opiniones están señaladas en la Figura 2.



Como se puede apreciar, la delegación laboral se ha puesto de acuerdo en que un aumento de 12 unidades es aceptable. Sin embargo, estima que la empresa como mucho accederá a otorgar un aumento de 4 unidades. A Pedro le llamó la atención que los trabajadores hayan dado valores negativos a los aumentos superiores a 12 unidades. Esto iba contra su expectativa y muestra cuán libremente Pedro condujo la discusión. Aunque a Pedro se le había advertido que esto ocurriría, recién al ver el resultado se convenció de que la parte laboral está muy consciente de que los posibles aumentos superiores a una cifra razonable son totalmente irreales y no dignos de ser tenidos en cuenta.

Obtenidos estos resultados, Pedro se excusó para sondear a la parte patronal, a quien, desde luego, no mostró los resultados obtenidos de los trabajadores. Luego de una conversación en términos generales, llegó un momento en el que el principal negociador patronal expresó que la posición laboral era tan rígida que creía sería imposible llegar a un acuerdo razonable. Esto dió a Pedro la oportunidad que buscaba. Pidió a la patronal que expresase su opinión sobre cuál estimaba era la posición sindical con respecto a los diversos salarios posibles. El resultado se puede apreciar en la Figura 3, en la que también se hallan los resultados obtenidos de los trabajadores.



Desde luego que esta gráfica no estaba a la vista de ninguna de las dos partes. Ninguna de las dos sabía hasta ese momento que información poseía Pedro.

Pero al dibujar las líneas, Pedro constató con sorpresa lo que ahora podemos ver. La patronal acepta dar un aumento de 16 unidades y la parte laboral se conforma con un aumento de 12 unidades, ambas prefiriendo eso antes de ir a un conflicto. Las posiciones son mas que reconciliables. Confirman plenamente lo afirmado por Stagner en el sentido de que cada una de las partes en pugna tiende a ver a la otra como mucho mas extremista de lo que realmente es (Stagner, 1956).

El desenlace. Pedro le solicitó a la patronal que regresase a la sala en la que esperaban los trabajadores, pero les solicitó que se sentasen en los espacios vacíos que quedaban a ambos lados de la mesa. Logró así transformar el clima de dos partes en pugna en lados opuestos de una mesa, en uno de funcionarios y patrones integrados en la solución de un problema.

Siguiendo la técnica de solución de problema en grupo (Varela, 1971) logró que todos se pusiesen de acuerdo en la definición del problema. Llegaron a una definición semejante a la que ambas partes habían formulado previamente. Entonces Pedro planteó el caso presumiblemente hipotético en el que las partes tuviesen posiciones muy cercanas una a la otra. Todos acordaron que, de suceder tal cosa, lo que muchos creían sería improbable, lo mejor sería partir la pequeña diferencia. Al obtener estos compromisos, Pedro obtenía declaraciones de todos. Esto los pondría en una situación de disonancia al descubrir luego que podría haberse obtenido una solución mas ventajosa. Pero como ya habrían expresado su opinión públicamente, reducirían la disonancia modificando su percepción y así refirmando lo convenido.

Obtenidos estos compromisos, se les solicitó a cada una de las partes que indicase por escrito, pero sin enterar a la otra, cual era el aumento salarial con que estaría dispuesta a transar. La parte patronal ofreció 16 unidades y la parte laboral indicó que estaría satisfecha con 12. Desde luego que en esta parte del relato se omite partes importantes del diálogo.

Pedro escribió estas cifras en el pizarrón y ante la mirada atónita de todos, calculó que el promedio era de 14 unidades, o sea mas de lo que el sindicato pedía y menos de lo que la empresa estaba dispuesta a dar. Desde luego que entre carcajada y felicitaciones el acuerdo fué firmado allí mismo. Todo el proceso había durado unos 90 minutos.

Pedro reconoció que era el acuerdo mas satisfactorio que había logrado en una larga carrera de lucha sindical y se declaró convertido a este nuevo sistema de solucionar diferendos.

Es importante recalcar que cada caso es especial. Se proyecta una solución para cada uno según las circunstancias. Pero con variantes, a veces bastante importantes, no obstante ha sido posible solucionar conflictos similares con resultados igualmente satisfactorios para todas las partes.

Necesidad y posibilidad de poner en práctica los principios. El ejemplo

precedente es solo uno de muchos en los que se ha visto que es factible crear soluciones rápidas, aceptables para todos que además evitan los largos y enojosos enfrentamientos que dejan saldos de prolongados resentimientos.

Pero lo que deseo recalcar una y otra vez, es que, si deseamos resolver los problemas, debemos hacerlo con soluciones que son sistemas constituidos por combinaciones de hallazgos. Aclaro nuevamente que esta actividad no es investigación. La investigación es necesaria. Sin sus resultados, no se puede crear una tecnología. Pero la investigación y la acción son dos actividades muy diferentes que no deben confundirse. Los problemas se resuelven con acción y no con investigación. Una de las dificultades de la realidad actual es que se trabaja mucho en investigación pero muy poco en acción basada en los resultados de esa investigación.

La exageración en la investigación. El énfasis exagerado en la investigación a costa de excluir la solución de problemas es muy generalizado. Lekachman describe bien este estado de cosas en el campo de la economía:

... los estudiantes de economía más sagaces forjan sus caminos en la carrera para obtener cargos universitarios permanentes, eligiendo temas menos susceptibles de dudas, pero que lleven a soluciones rápidas. El artificio consiste en aplicar un método matemático esotérico a un pequeño problema para el cual existe información disponible. Se manipula eso en forma elegante por medio de una computadora electrónica y se hace una defensa de la tesis resultante frente a un comité bien dispuesto a aprobar y así lanzar al estudiante por los caminos de la gloria profesional. Dadas tales condiciones, muy pocas de las tesis de doctorado pueden contribuir al acervo de conocimientos útiles. La ignorancia del mundo real es algo más que una felicidad. Es el prerrequisito para una carrera exitosa en el campo de la economía (Lekachman, 1978, pp. 184-85).

Pero este estado de cosas no es monopolio de la economía. Abarca a todas las áreas. Hasta las matemáticas se han contaminado. El gran matemático, Morris Klein, al referirse a la orientación actual de la investigación en las matemáticas, sometida a la presión para publicar, ha dicho en un libro reciente:

Como los problemas relacionados con la aplicación exigen vastos conocimientos de las ciencias además de las matemáticas, y como los no estructurados son más difíciles, es mucho más fácil inventar problemas propios y así resolver lo que se puede resolver. Los profesores no sólo eligen problemas de matemáticas puras que pueden ser resueltos en breve tiempo sino que asignan tales problemas a sus alumnos en sus programas de doctorado a fin de que puedan concluir sus tesis rápidamente (Klein, 1980, pp. 283-4).

Klein añade que la especialización en las matemáticas ha tomado tal cariz que lo que en una época se decía incorrectamente de la relatividad, en el sentido de que solo una docena de personas la comprendían, hoy se aplica a todas las ramas de las matemáticas (Klein, 1980). Cada uno de las matemáticas de hoy es conocida y comprendida solamente por un pequeño grupo de los iniciados al mismo.

La psicología tampoco se ha librado. En una carta reciente, T. M. Newcomb me escribe que Fritz Heider le comentó que para él la psicología social se ha convertido en miles de islas sin conexión alguna con el continente o entre islas. En una universidad en la que dicté un curso de psicología social, un alumno me dijo: "Es increíble! Después de muchos años de estudio en psicología me entero que existen muchos aspectos importantes en la psicología. En cambio dentro de poco me recibo de doctor y lo único que conozco a fondo es la relación que existe entre los impulsos discontinuos de entrada y los continuos de salida en el hipotálamo izquierdo de la rata blanca."

A la dicotomía bastante simplista de "países desarrollados" y "países sub-desarrollados", he añadido una tercera categoría. Esta es la de los países sobre-desarrollados. Los países sobredesarrollados se definen como aquellos que son tan ricos que pueden mantener enormes y costosos establecimientos para la investigación que producen decenas de miles de hallazgos por año pero que se dan el lujo de no usar nada de eso para mejorar el bienestar de la humanidad. Los países sobredesarrollados tienen serios problemas sociales internos, pero en vez de reconocer la existencia de estos y usar los conocimientos que poseen para tratar de resolverlos, los ignoran y se dedican a dictarle al resto de la humanidad cómo debe actuar.

En cierto sentido, esta tercera categoría fué prevista por Schumpeter, el economista austriaco a quien ya me referí. Dijo que en las grandes corporaciones, la innovación y la creatividad desaparecerían, siendo reemplazadas por un acomodarse a la organización por parte de sus integrantes que por lo tanto transan con todo para sobrevivir. Añadió que el sistema crearía la riqueza necesaria para mantener a una clase intelectual que no comprendería al propio sistema (Schumpeter, 1950).

Lo que describe Lekachman con respecto a la economía, Klein sobre investigación en matemáticas y Newcomb y Heider sobre psicología social y lo que ocurre en muchas otras áreas confirman la profecía de Schumpeter.

Una receta para el futuro. Pero no quiero hacer crítica destructiva. A mí me gusta construir. He pensado mucho sobre el problema y he arribado a algunas conclusiones. Para evitar que este estado de cosas se siga agravando y para que podamos mejorar el bienestar de los países latinoamericanos que son afortunados en no poseer tanta riqueza, es necesario que dediquemos una buena parte del esfuerzo de nuestros científicos a la solución de problemas. Esto no quiere decir que no debamos continuar con la investigación. Pero debemos continuar en una forma menos desen-

frenada. Para lograr este éxito es necesario que tomemos dos medidas fundamentales.

La primera medida es la de estar más dispuestos a reconocer a los innovadores cuando estos se hallan en las primeras etapas de su desarrollo que es cuando más lo necesitan. Yo agradezco profundamente a la Sociedad Interamericana de Psicología el homenaje que me hacen al conferirme esta placa en reconocimiento de mi trabajo. Pero estimo que el mejor homenaje que me pueden hacer, o mejor dicho, que nos podemos hacer a nosotros mismos, es el de dedicarnos a reconocer y alentar a todos aquellos que, teniendo ideas originales con las que se pueden resolver problemas, encuentran grandes dificultades en ser escuchados y alentados. La historia del avance científico está demasiado repleta de las luchas que tuvieron los innovadores para que se les atendiese.

Que no le pase a la psicología, con el potencial que tiene para hacer bien, lo que le pasó a la física. Isaac Newton formuló las leyes del movimiento de los astros a los 24 años de edad. Falleció a los 84 años sin que uno solo de sus colegas en el continente europeo hubiese reconocido la validez de sus descubrimientos. Dos siglos y medio después, en la Academia de Ciencias de Prusia, quedaban vacíos los sillones contiguos a Albert Einstein porque ninguno de los científicos quería que se les asociase ni por aproximación a quien proponía ideas tan absurdas como la teoría de la relatividad.

La física muchas veces demoró mucho en avanzar debido a tales actitudes negativas hacia la innovación. La psicología tiene responsabilidades demasiado grandes para poder actuar así. Reconozcamos pues hoy mismo a quienes tienen algo que ofrecer pero luchan sin éxito para ser oídos.

La segunda medida fundamental que debemos adoptar es la de que una parte importante de la profesión debe dedicarse a resolver problemas. En una reciente entrevista televisado, le preguntaron al Dr. Jonas Salk cual estimaba sería el próximo gran paso en la ciencia. Respondió: "El próximo gran avance vendrá cuando apliquemos lo que ya sabemos" (Salk, 1980). No podría estar más de acuerdo. Pero vuelvo a insistir que la aplicación se hace mediante una síntesis del saber extraído de muchas disciplinas.

Es fácil y hasta divertido que cada profesión se dedique a mofarse de las otras—Algún psicólogo ha mostrado su actitud negativa hacia los economistas definiéndolos como quienes dicen lo obvio en términos de lo incomprendible, o como me los definió Ross Stagner: "Un economista es una persona que pueda razonar en línea recta desde una hipótesis falsa a una conclusión incorrecta." Otros han definido a un abogado como un sujeto encargado de resolver problemas que no existirían si no hubiesen abogados. Pero no olvidemos que esas profesiones tienen también definiciones irónicas de lo que es un psicólogo.

Pero aunque esto es jocoso, no nos ayuda a avanzar en el camino del

progreso. En vez de unirnos, nos separa. El Dr. Karl Compton, en su conferencia durante la Convocatoria de Medio Siglo del Instituto Tecnológico de Massachusetts, expresó su creencia de que los principales avances de la segunda mitad del siglo veinte surgirían de la síntesis de ideas extraídas de esferas científicas muy diferentes.

Nuestra tecnología social constituye un paso en la dirección señalada por Compton. Tratamos, como se ha visto, de integrar todo lo posible y pertinente de todas las áreas relevantes. Pero esta integración no se realiza mediante el simple expediente de reunir a expertos en las diversas especialidades. Cada uno de nosotros debe interesarse por el trabajo de los demás, y tratar, por todos los medios, de que los demás comprendan el trabajo nuestro.

Es necesario pues que los psicólogos se acerquen a los economistas con dos objetivos. Uno de ellos es de ilustrarlos en el sentido de que existen hallazgos en las ciencias sociales más sofisticados que la psicología ingenua y muchas veces incorrecta de la que ellos se valen. El otro es que los psicólogos comprendan la manera de pensar de los economistas para poder adaptarla a la psicología.

Es esencial que continúe la investigación, especialmente por parte de quienes poseen verdadera vocación para ella. Probablemente los hallazgos más importantes sobre nosotros mismos están aún por descubrirse. Necesitamos esa información para actuar cada vez con más seguridad. Pero simultáneamente, una parte de la psicología debe dirigirse a la integración práctica para asistir en la solución de problemas pequeños y grandes. Esto requiere que algunos dejen la especialización para transformarse en pensadores renacentistas. Si esto no ocurre y todos persisten en la investigación pura sin preocuparse de las aplicaciones, las ciencias serán estériles.

Bertholt Brecht, en su obra *Galileo* pone en boca del propio Galileo el siguiente consejo dirigido a su discípulo Andrea Sarti:

Yo estimo que el único objeto de la ciencia es el de aliviar los dolores de la existencia humana. Si los científicos se conforman con acumular el saber por el saber en sí, la ciencia será una ciencia inválida. Dado tiempo suficiente, podrán quizás descubrir todo lo que hay que descubrir, pero vuestro progreso no será sino una aventura alejada de la humanidad (Brecht, 1972).

Pero aún estamos a tiempo para que en la segunda mitad del siglo veinte se cumpla la predicción de Compton. Para esto, es necesario dedicar una buena parte de nuestro esfuerzo y tiempo a la tecnología social amplia, que incorpore el saber de muchas disciplinas.

Helena Reyes y yo comentamos sobre este aspecto al final de nuestro trabajo reciente (Reyes & Varela, 1980). En esencia decimos que si nuestra meta es la de resolver problemas sociales, debemos integrar. Los intentos actuales de resolver problemas sociales por medio de unos pocos princi-

pios derivados de una sola idea aislada de las demás, no están dando resultados. Una tecnología sin una sólida y amplia base científica será siempre limitado y poco eficaz. Pero una ciencia sin aplicaciones será inútil.

Que la psicología y los psicólogos, lanzándose al liderazgo, puedan ocupar el papel coordinador que les corresponde en la promoción de la felicidad de la humanidad.

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NOTAS AL PIE DE LA PAGINA

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RELATIONSHIPS BETWEEN MORAL JUDGMENT AND PERSONALITY STRUCTURE: A TEST OF HOGAN'S HYPOTHESIS WITH BRAZILIAN SUBJECTS

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The objective of this study was to test with Brazilian subjects, Hogan's (1970) hypothesis that personality structure and moral thought are related. Subjects were 100 female Brazilian university students from a private Catholic university in Rio de Janeiro, who took the Portuguese language adaptations of Hogan's Survey of Ethical Attitudes (SEA) and of the Comrey Personality Scales (CPS). The SEA measures the tendency toward an ethic of social responsibility versus an ethic of personal conscience, both of which are considered equally mature by Hogan. Results revealed significant correlations between "ethics of social responsibility" and the CPS trait of "orderliness versus lack of compulsion". These results are consistent with Hogan's theoretical framework and previous findings, as well as with Lazari's study with Brazilian subjects. A detailed description of the validation of the Portuguese form of Hogan's SEA is also included.

El objetivo de este estudio fue estudiar, con sujetos Brasileños, las hipótesis de Hogan (1970, 1975) respecto a la relación existente entre la estructura de personalidad y el pensamiento moral. Los sujetos fueron 100 estudiantes femeninos de una universidad católica privada del Rio de Janeiro, quienes tomaron el Levantamiento de Actitudes Éticas de Hogan (SEA) y la Escala de Personalidad de Comrey (CPS) en sus adaptaciones a lengua Portuguesa. El SEA mide la

tendencia a una ética de responsabilidades sociales en contraste a una ética de conciencia personal, ambas siendo consideradas igualmente maduras por Hogan. Los resultados revelaron correlaciones significativas entre "la ética de responsabilidad social" y los trazos del CPS "orden versus falta de compulsión" y "conformidad versus rebeldía". Estos resultados son consistentes con la teoría de Hogan y sus resultados previos, así como también con el estudio de Lazari (1979) con individuos brasileños. Una descripción detallada de la validez del SEA de Hogan en la versión Portuguesa está también aquí incluida.

The study of moral judgment has received great attention in the past two decades, mainly through the impact of the works of Kohlberg (1963, 1969). In spite of its popularity, Kohlberg's theory has been criticized by a variety of authors, e.g. Kurtines and Greif (1974) who focused their criticism on methodological issues, such as the reliability of the measuring instrument.

Hogan (1970) argues that the ethic of social responsibility is not less mature than the ethic of personal conscience, as implied by Kohlberg's sequence. According to Hogan, several moral principles can be placed in one or the other of two categories in social philosophy: "the ethics of social responsibility", and the ethics of "personal conscience". The former holds there is no "higher law", and that the higher ideals are the existing legal system and the welfare of society. Persons holding this view distrust personal and intuitive notions of morality, since they might lead to anarchism or individualism. According to the ethics of personal conscience, there are higher laws, not necessarily related to human legislation, which may be discovered by intuition or reason.

The objective of this study is to replicate the results obtained by Hogan concerning the relationships between moral judgment and the structure of personality with a sample of Brazilian subjects. The main thesis of Hogan's 1970 study was that a person's moral judgments are intimately related to the structure of his personality more so than to cognitive development. A scale to measure either disposition, the "Survey of Ethical Attitudes" (SEA) was developed. Data on the reliability and validity of the SEA are provided by Hogan (1970).

Correlations between the SEA and variables of the California Psychological Inventory (CPI) are presented as support for the notion that an underlying structure is associated with the ethics of social responsibility or the ethics of personal conscience. CPI factors that correlated significantly and positively with SEA scores were socialization and communality. Significant negative correlations were obtained between SEA scores and capacity for status, social presence, psychological mindedness, and flexibility (all significant at the .01 level). In a later paper, Hogan (1975) has identified socialization, empathy, and autonomy as main personality variables associated with moral development. Scores on the SEA correlated positively with socialization and autonomy and negatively with empathy.

Because of the availability of a very carefully done adaptation of the Comrey Personality Scales to the Portuguese language, as well as available norms for the Brazilian population (Comrey, 1973; Rodrigues & Comrey, 1974), this instrument was used to assess personality structure, rather than the CPI.

On the basis of Hogan's results, it was hypothesized in the present study that "ethics of social responsibility" should correlate positively with "orderliness versus lack of compulsion" and with "social conformity versus rebelliousness". It should correlate negatively with "empathy versus egocentrism". No other correlations with CPS scales were predicted.

METHOD

Subjects

The subjects of the study were 100 female Brazilian college students from Rio de Janeiro.

Instruments

The two instruments used were:

a) A Portuguese language version of Hogan's SEA, which is a 24-item self-report scale. For each item, the subject is required to choose one out of two alternatives. One alternative is indicative of ethics of social responsibility, the other of personal conscience. The test was scored in the direction of social responsibility. The SEA was translated from English into Portuguese by the first author. The adequacy of the translation was assessed by means of correlating scores obtained by a sample of 30 Brazilian subjects, fluent in English and Portuguese, who took the test twice, once in English, once in Portuguese, with a one week interval. Half of the subjects took the English form first, whereas the other half took the Portuguese form first, in order to counterbalance possible order effects. The correlation coefficient between total scores in English and total scores in Portuguese for the bilingual subjects was .99 which is very high, indicating that the English and the Portugueses forms measure the same attitude.

Reliability of the Portuguese version of the SEA was obtained by means of the split-half method (first twelve items versus last 12 items), yielding a correlation of .95, corrected by the Spearman - Brown formula. KR-20 was also calculated, yielding a value of .77. These data provide sufficient evidence of the internal consistency of the scale. Temporal stability for a sample of 30 college students, with a three-week interval was .95. Content validity of the scale can be assumed on the basis of the equivalence of the Portuguese and English scales ($r = .99$, for bilingual subjects), since Hogan (1970) reports good validity data for the original scale.

b) Personality structure was measured by Comrey Personality Scales which were translated into Portuguese by Rodrigues and Comrey (1974). Studies of the factorial validity of the Portuguese form are reported therein.

RESULTS

The mean "ethics of social responsibility" (SEA) score was 10 and the standard deviation was 3.81. The results show that the only CPS variables which correlated with ethics of social responsibility were social conformity versus rebelliousness ($r = .29, p < .01$), and orderliness versus lack of compulsion ($r = .24, p < .05$), thus confirming the hypotheses regarding the two positive correlations expected. However, the hypothesized correlation between SEA scores and empathy versus egocentrism was not obtained.

DISCUSSION

The pattern of correlations obtained fits logically with the theory. Factor "Social conformity versus rebelliousness" is thus described by Comrey (1973): "Individuals who are high on this factor depict themselves as accepting the society as it is, respecting the law, believing in law-enforcement, seeking the approval of society, and resenting non-conformity in others. Individuals who are low on this factor are inclined to challenge institutions of the society, resenting control, accept non-conformity in others and are non-conformists themselves" (p. 6).

Factor "orderliness versus lack of compulsion" is described by Comrey (1970) in the following way: "Individuals who are high on this factor tend to be very concerned with neatness and orderliness. They report being cautious, meticulous, and say they like to live in a routine way. Individuals who are low on this factor are inclined to be careless, sloppy, unsystematic in their style of life, reckless, and untidy" (p. 6).

The characteristics of the individuals who are described by Comrey as high on these two traits seem to be in accordance with the description of individuals high on ethics of social responsibility. These results are also consistent with most of the significant relationships obtained by Hogan: SEA scores correlate significantly and positively with social responsibility, socialization, communality, and negatively with flexibility and achievement via independence. Differences between the two studies may be attributable to differences in the meaning of CPI and CPS factors.

The results of the present study are also consistent with those obtained by Lazari (1978), who correlated CPS variables with Moral Maturity Scores according to Kohlberg's scheme. In a study with 20 Brazilian university subjects, Lazari found a correlation of .47 between "orderliness versus lack of compulsion" and Moral Maturity. At any rate, there is considerable evidence that the structure of personality is linked to moral thought, and empirical comparisons between Kohlberg's and Hogan's results should be interesting to make.

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FOOTNOTES

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CREATIVE STRENGTHS OF BRAZILIAN AND U.S. CHILDREN

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*The creative strength of Brazilian elementary school children was compared to that of U.S. children in grades one through four. The **Thinking Creatively with Pictures, Form A** by Torrance, was used and scored by the streamlined scoring procedure recently developed by Torrance and Ball (1980). Brazilian and U.S. children differed in their creative production with this sample of Brazilian children generally exceeding the U.S. norm group. Brazilian children, at all four grade levels, scored higher in **Expression of feelings, Unusual visual perspective** and in the **Extension of boundaries**. Children from the U.S. were generally higher in **Humor** and **Colorfulness of imagery**.*

*As forças criativas das crianças brasileiras do primeiro ao quarto ano primário foram comparadas com as das crianças americanas nos mesmos graus educacionais. O teste usado foi "Pensando criativamente com figuras" de Paul Torrance, sendo este teste corrigido usando-se o sistema desenvolvido por Torrance e Ball (1980). Os dois grupos de crianças divergiram bastante no uso de forças criativas. Em todas as 4 séries, as crianças brasileiras obtiveram maiores resultados do que a americanas em **expressão de sentimentos, uso de perspectiva incomum, e extensão de limites**. As crianças americanas superaram em geral as crianças brasileiras no uso de **humor nas respostas e no colorido de imagens**.*

Studies of creative thinking in children have examined the creative production of elementary pupils in a variety of cultural settings. A recent compilation of studies examining the Torrance Tests of Creative Thinking (TTCT) (Torrance, Dogan, & Horng, 1981) report creative abilities of pupils in many countries throughout the world.

Considerable interest exists among researchers regarding the cross-cultural qualities of creative thinking and creative behavior. It is readily discernible that all cultures produce creative individuals but it is not acknowledged that all cultures provide the same stimulation for the development of creative abilities. Ogletree (1971a) attempted to investigate the validity of tests of creativity when used with subjects in the U.S. and other nations. The general conclusion was that responses considered to be original in the U.S. were also considered creative in other cultures. In contrast to this position, Jones and Shea (1974) as well as McGaskill (1976) suggest that ratings of original responses vary from one culture to another.

One study comparing the creative strengths of second-grade children from Thailand and the United States (Rungsinan, 1977) indicates that Thai children draw more pictures from an unusual and internal visual perspective than do American children. The Thai children also revealed a stronger resistance to quick closure, a characteristic indicative of creative ability.

Another study by Ogletree (1971b) examined the creative production of children in England, Scotland, and Germany. These results suggested that age or grade level rather than cultural difference seemed to be a major factor in the level of creative production. Alieldin (1978), in another study, revealed that age level is significantly related to creativity. In both of the previous studies, older children exhibited more creative characteristics than did younger elementary pupils. Torrance (1962) provides a rationale for these findings when he noted that different cultures emphasize or provide the freedom for creative thinking at different age levels in their school programs.

Finally, Ball and Torrance (1978) report on a procedure used to study the creative strengths of people of different nationalities. They noted especially that persons from eastern cultures exhibit a greater tendency to draw objects from an internal visual perspective than do persons from western cultures. They propose this new technique of assessing creativity as useful in interpreting cultural differences in creativity.

Few of these studies of cross-cultural ability or production in creativity have focused on Latin American cultures. Yet the increasing importance of cultural interaction with Latin America adds significance to cross-cultural comparisons of the psychoeducational characteristics of Latin American children. One such effort to understand the creative abilities of Brazilian children is reported by Alencar and Feldhusen (1976). These researchers report that whereas Brazilian pupils initially score low on creative activities, there is considerable increase in creativity as a result of training or warm-up experiences.

The present study was designed to initiate a comparison of Brazilian and U.S. children on a test of creative strengths. Since children typically differ in creativity as a function of age, four different age levels (grades one through four) were

selected in each country for investigation and comparison. The streamlined scoring procedure reported by Ball and Torrance (1978) was used to denote creative strengths because of the effectiveness of this technique in cross-cultural assessment.

METHOD

Subjects

The Brazilian pupils were chosen from two locations to approximate the urban and rural characteristics of the U.S. sample. The urban population came from Recife, a large city in the north of Brazil, and consisted of 121 students selected from each of the first four grades. The rural children came from Muriae, located in the south of Brazil and consisted of 141 pupils. The total sample of 265 children was approximately equal in males and females and had 73 first graders, 68 second graders, 58 third graders, and 66 fourth graders. The children from each location and grade were equally representative of high and low socioeconomic status in Brazil.

The sample of U.S. children was 5002 pupils of both sexes and representative of urban and rural populations, and of high and low socioeconomic groups in this nation. Grade one was represented by 583 pupils; grade two - 955; grade three - 1577; and grade four - 1887. Although the socioeconomic levels in the U.S. and Brazil may not be considered comparable, these two samples were selected to be representative of the urban, rural, sex, and socioeconomic conditions of early elementary pupils in each nation.

Instruments

Form A, *Instruments of Thinking Creatively with Pictures* (Torrance, 1966) is a non-verbal test consisting of ambiguous stimuli such as a jelly bean shape or lines of different forms which the child is instructed to use as the main part of the drawing which he/she produces. A streamlined scoring procedure for this instrument (Torrance & Ball, 1980) yields eleven different indices of creative strengths; (1) Expression of feelings and emotions; (2) Articulateness in telling stories; (3) Movement and action; (4) Expressiveness of titles; (6) Unusual visual perspective; (7) Extension of creative boundaries; (8) Humor; (9) Internal visual perspective; (10) Richness of imagery; and (11) Colorfulness of imagery. Considerable research by Torrance (1981) and his colleagues continues to indicate that each of the preceding characteristics are indicative of creative behavior.

Thinking Creatively with Pictures, Form A was translated into Portuguese and administered by a native Brazilian to the Latin American children in this study. The time for completion and instructions to the children were identical for both the Brazilian and U.S. subjects and were presented in the child's native language. All children were tested in small groups in their own schools and monitors were available to clarify questions before and during the testing session. In each instance, the time available for pupils to respond to the test was 30 minutes.

RESULTS AND DISCUSSION

There is some flexibility in scoring for creative strengths such as recording the exact frequency of occurrence of a creative behavior or simply noting whether the creative strength is exhibited or not (Torrance, 1982). In this study, the absence or presence of a creative strength was noted rather than the frequency of its occurrence. This method of scoring is considered more indicative of a general creative tendency of the child; whereas, frequency of creative behavior may be more indicative of training or reinforcement for creative behavior.

The number of subjects in the two samples differed substantially, so the percentage of pupils in the U.S. and in Brazil who exhibited each creative strength or not appears in Table 1. Significant differences in creative strength by grade and nationality are indicated. The creative strengths occurred in greater proportion in the nation where one or two asterisks appear in that column.

Table 1
Percentage of Brazilian and U.S. Children
Exhibiting Each Creative Strength at least once

Creative Strengths	Grade 1		Grade 2		Grade 3		Grade 4	
	BR	US	BR	US	BR	US	BR	US
Expression of feelings	85 **	31	78 **	62 **	62 **	32	73 **	41 **
Articulateness in telling stories	30	27	28	37	34	39	56 *	40
Movement and action	44	52	44	70 **	53	63	67	60
Expressiveness of titles	12 *	4	6	9	26 *	13	24	20
Combination of figures	25	20	18 **	4	31 **	3	29 **	2 **
Unusual visual perspective	74 **	24	68 **	45	76 **	49	83 **	50
Internal visual perspective	52 **	13	68 **	27	43	31	67 **	29
Extension of boundary	96 **	39	96 **	34	86 **	60	91 **	42
Humor	4	10	1	31 **	7	33 **	11	24
Richness of imagery	47	46	43	56	48	52	67	53
Colorfulness of imagery	30	33	24	56 **	38	69 **	41	56

* $p < .01$

** $p < .001$

The chi-square statistic (2 degrees of freedom) was used to analyze the data with alpha level set at $< .01$. Each creative strength was analyzed separately for each of the four grade levels.

The occurrence of creative strengths in these two groups of children represents some interesting contrasts. Overall, a greater proportion of the Brazilian than U.S. children were likely to express a creative strength at least once. These findings are summarized here by grade level.

In grade one, Brazilian children were more likely to exhibit *Expression of feelings*, *Expressiveness of titles*, *Unusual visual perspective*, *Internal visual perspective*, and *Extension of boundaries*. In all other creative strengths, U.S. and Brazilian children did not differ significantly. In grade two, more Brazilians scored on *Expression of feelings*, *Combination of figures*, *Unusual visual perspective*, *Internal visual perspective*, and *Extension of boundaries*; whereas, U.S. pupils were higher on *Movement and action*, *Humor*, and *Colorfulness of imagery*. Grade 3 U.S. children again scored higher in *Humor* and *Colorfulness of imagery* while the Brazilians excelled in *Expression of feelings*, *Expressiveness of titles*, *Combination of figures*, *Unusual visual perspective*, and *Extension of boundaries*. In the fourth grade, Brazilian children scored higher on *Expression of feelings*, *Articulateness in telling stories*, *Combination of figures*, *Unusual visual perspective*, *Internal visual perspective*, and *Extension of boundaries* and the two groups did not differ in other creative strengths.

In brief, the results of this study suggest the Brazilians are consistently higher in expressing feelings, in portraying an unusual visual perspective in the combination of figures to make a picture, and in the extension of boundaries in their creative productions. Expressiveness in titles and articulateness in telling stories was evidenced by some Brazilian pupils while some U.S. pupils revealed strengths in movement and action, humor, and colorfulness of imagery.

It is quite likely that the differences in creative strengths reflect actual cultural differences that may be attributable to specific values and predispositions of each culture. This initial descriptive study was not designed to determine how children in each culture acquire the creative strengths that they exhibit. However, the casual observer in Brazil may note a relatively greater emphasis on the expression of feelings than is typical of U.S. culture. Humor and a colorful imagination in children may also be a value rewarded more in the U.S. than in Brazil.

Further studies comparing elementary children in these two countries may serve to verify these findings as well as to begin an exploration of the cultural factors that may influence the development of creative strengths. Creativity is a highly valuable asset for the populace of any nation. Creative strengths are especially useful in planning the solutions to social and technological problems of tomorrow. One of the values of increased cultural interchange is the sharing of techniques for expanding the human potential for creative action and thought.

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FOOTNOTE

1. Requests for reprints of this article should be sent to: Bert O. Richmond, Educational Psychology, University of Georgia, 325 Aderhold, Athens, GA 30601.

SYMBOLIC INTERACTION AND "SOCIAL PATHOLOGY": AN ALTERNATE EXPLANATION OF BEHAVIOR

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Symbolic interaction theory is offered as an explanation for the development and retention of patterns related to group deviance. The communicative processes underlying such behaviors are presented. Aside from somatically caused conditions, deviant behaviors are viewed as the results of various dysfunctions arising from early social learning. Symbolic interaction theory offers the possibility of objectively analyzing, predicting and controlling the social contributors to deviance. Similarly, it provides a shift in emphasis of treatment from a clinical focus on the patient to one in which the developmental, environmental and social context of the disturbance and its interactionist origins can be empirically examined.

La teoría de la interacción simbólica se ofrece como una explicación del desarrollo y retención de los patrones de vida relacionados con la conducta antisocial de un grupo. Se presentan los procesos de comunicación que subyacen estos comportamientos. Excepto por las condiciones causadas por problemas somáticos, comportamientos anormales se ven como el resultado de varias disfunciones provenientes del aprendizaje social temprano. La teoría de la interacción simbólica ofrece la posibilidad de analizar objetivamente, prediciendo y controlando las conductas antisociales. De una manera semejante, provee un cambio de énfasis en el tratamiento de un foco clínico en el paciente a uno en el cual el contexto social, ambiental, y del desarrollo del problema y sus orígenes interaccionistas se pueden examinar empíricamente.

Several explanations of human behavior are based upon assumptions about animal behavior. Two major contemporary theories, Behaviorism and Freudianism, emphasize the instinctual, nonreflective aspect of human behavior. Many middle-level theories, such as Gestaltism, the neo-behaviorism of frustration-aggression conceptions, and many others do not refer to a person's distinctive social characteristics. It is proposed that social explanations of behavior may have a heuristic advantage in the study of human "social pathology" as well as in the examination of normative human functioning.

Symbolic interaction theory assumes that people respond to the actions of themselves and of others primarily by using symbols rather than non-symbolic or physical signs. Symbolic learning is viewed as occurring through social interaction. A symbol is conceived as a stimulus with a learned meaning and value loading. Response to a symbol is viewed in terms of its meaning, values and associated feelings rather than its physical stimulation of sense organs.

Interactionism has recently become accepted among ascendant sociologists. Although many current interactionists may differ widely on theoretical points, these differences are less important for purposes of clinical observation or application.

In symbolic communication one person (the sender), seeking to elicit specific behavior from another person (the receiver), selects a symbol from his repertoire. The sender chooses a symbol on the belief that it is the one most likely to create the desired behavior in the receiver. The sender encodes the chosen symbol into a signal. The latter is relayed to the receiver, the receiver tries to decode it in terms of its probable meaning and value for the sender. The receiver predicts what activity the sender wants him to engage in. It is assumed that in addition to the meanings and value loadings associated with the symbol, there are also linked emotional reactions or feelings of the sender. If the receiver perceives the symbol as being fairly congruent with the symbology of the sender and reasonable with respect to its symbolic history, and if the receiver can translate it accurately, the receiver will be likely to act accordingly. Successful communication depends on the receiver's perceptions of an observer's perception of a congruence between the sender and the sender's past social learning. The "meaning" of a symbol refers to the way people actually use a particular term in their behavior. The value of a symbol arises or proceeds from the receiver's learned attraction or repulsion to a particular symbol or meaning.

Symbols and meanings are learned through interaction with other people. Symbols can be viewed as having common or shared meanings and values with respect to the way most people in a community or society use them. This provides the mainstream component of a society with "consensual validation", even though the consensus of understandings is never complete. Common values are shared in norms and ideals. Norms are direct guides to positive acts or positive values. Ideals are what an individual says or believes he/she would like to do, which may coincide at times with the norms, and at other times have only a remote or indirect relationship to actual behavior. Even when ideals do not coincide with norms, they provide guides to behavior as "remote goals to be reached indirectly".

Much human behavior is learned and based upon symbolic communication rather than from direct trial and error. A culture is defined as what people do, that is, how they act. Such actions are determined by the members' constructions and understandings of the symbols they employ; these guide human behavior. Through the learning of culture, people are able to predict each other's behavior most of the time and gauge their own behavior to the predicted behavior of others. A society is only possible when common symbols and expectations exist. A person's acts are not completely predetermined, even though the individual's actions are purposeful. Responses are made after an individual interprets his perception of others' behavior.

Enveloped with the meanings and values a particular symbol has for an individual are the feelings the individual displays toward the symbol. The latter may be viewed as comprising a subjective or emotional system that operates concurrently with the rational or analytic process. Under ideal conditions this subjective-emotional system deals primarily with deciphered meanings rather than feelings. The affective system can operate in a number of ways: as a support of the rational-analytic system; as a diversion from the rational-analytic system; as opposition to the rational-analytic system; or as a neutral process that has little effect upon the rational-analytic system.

The way the emotional system operates affects the choice of particular behaviors, the clarity of perceptions, the accuracy of decoding symbols and the way derived meanings are used by an individual in planning actions and responses. Affective conditions also influence the degree of success or failure in processing the meanings and values into appropriate symbols so that they will be understood by the receiver.

Feelings are particularly important in an understanding of symbolic interaction theory because they are often the only indicators to the individual of the degree to which the social scene can be perceived as being secure or insecure. Because social security is often related to economic and physical security, emotions such as fear often serve as screens that skew both that which is encoded and that which is received and decoded. In a sense just as body temperature is an indicator of the body's physical condition, feelings indicate the body's emotional condition. Emotions provide important inputs into the individual's choices and selections of experiences and interactions, as well as acting as important barriers for the individual's effectiveness as a perceiver and "sender". Behavior is a product of both rational and affective subjective experience.

Symbolic interaction theory views human development as a continuing process that the individual goes through in a series of stages. The person is first an "object" and then a co-developer of the family as a group, then "object and co-developer" of the peer group, then "object and co-developer" of the school group, then "object and co-developer" of the task-oriented group, and then "founder, co-developer and object" of one's family group. In each of these phases the individual may begin as an object of the group and may enter by being under its control, but very soon moves to an interaction phase, where he/she both shapes the group and is shaped by it. Before "graduation" from the particular experience, the individual spends

considerable time as a major determinant in the group. From the viewpoint of the symbolic interactions, social organization is acquired from behavior patterns which are formed by actors attempting to achieve goals. Since situational factors vary, individuals must continually reinterpret and re-appraise new information and adjust their behavior accordingly.

Consistent patterns of interaction provide a behavioral referent for actors. These predictable interactions are established by individuals who share a common culture. From the interactionist's view, a fully functional person has a repertoire of roles, role behaviors, norms, symbols, and role equipment which are of adequate breadth and depth to enable successful communication with members of one culture and the various subcultures. Roles are assumed to have been adequately tested and experienced by the user with the "mainstream" of societal interaction. In such a "competent" person the variety of symbols, meanings, values and other role equipment would be adequate to secure a reasonable "fit" in communicating with most other persons in the society. This person would, thereby, have earned a sense of security in role competence to such a degree that a balanced sense of personal autonomy with a countervailing sense of responsibility to others and society would have been achieved. This is what might be described as the desired range of normative and socialized behavior.

The deviant, from the interactionist's view, is a person who experiences difficulty in social interaction, communication and understanding. Unlike other theories such as structural-functional theory or conflict theory which view humans primarily as an object, symbolic interactionist theory defines deviance as other than an abnormality residing within an individual or individuals. Instead, it posits that failures of communication and understanding, past and present, cause an individual to behave according to that individual's definition of the situation that is widely variant from the definition of the situation held by others. Such a conflict of "definition" is a product of the communications and understandings of more than one person. Thus, interactionist theory views deviance as a breakdown or distortion of past and/or present communication and understanding, as experienced by two or more persons. Symbolic interaction theory views deviant behavior, and the counterpart behavior of other members of the social network, as mutually aberrant distortions of the social reality involving a complex of interacting purposes. The existence of such a mainstream or operational reality is supported by Scheff (1970) in his statement that "there is a public order which is continually reaffirmed in social interaction". He indicates that every time a person in the society conforms to the stated or unstated cultural expectations of that society, he helps to maintain the status quo. When one considers the overwhelming proportion of such acts to those that are deviant from the expectations, we must necessarily accept that as proof of the operational reality or mainstream.

Among interactionists there are some who reject a "mainstream" orientation, and, instead, justify "multiple realities" as a legitimization for all deviance. In a functional society, however, the welfare of one population generally requires that destructive or disorganizing deviance be constrained. Thus, the number of legitimized and accepted realities must necessarily be kept within functional limits.

Under symbolic interactionist theory, a person moves beyond the primitive

condition by a process of socialization that proceeds through psychogenic, blockage and language or linguistic stages. Sullivan has described how the infant moves from protaxic and parataxic processes to the cognitive syntactic processes which are "consensually validated" by a "critically-related other". Thus, the normative person supposedly gains a sense of "reality". Consensual reality is established and maintained by the agreement of the groups that have meaning for the individual in it. Through social reality the individual acquires objective reality which differs from consensual reality in that it is validated by accepted "experts" over a period of time. Learning occurs primarily in relation to significant others. The significant other is someone with whom the individual participates in role reciprocity. These significant others enable and constrain each other's behavior through validation or non-validation of each other's acts. The reactions of the significant other are of major importance to each individual. Only from a sense of congruence of meanings with significant others does one attain "social security". Therefore, meanings, particularly those of significant others, have strong affective or expressive significance, and define the intensity of relationships. The significant other serves as a model for the individual and affects the individual's self-concept.

The individual's ability to communicate with others enables performance in relations with others. Developmentally, gestures and behavior precede symbols or meanings and feelings. The individual's ability to communicate with him/herself enables the conscious construction of behavior beyond mere or rote performance. As the individual observes the behaviors of others, hypotheses are formed about the motives of others. These hypotheses can be either instrumental or terminal. Instrumental hypotheses provide for the mutual exploration of motive for the planning of future interactions. Terminal hypotheses interpret the behavior, meanings, presumed motive and feelings of others in such a way that interactions between the self and others are distorted, constrained, or prevented. Social interaction is dependent upon the process of continual input of motives. Interpretations of the behavior of others aid individuals in defining who they are, what is being required of them, how their anticipated acts will be interpreted by others, and how others will respond to their behavior. Motives can be interpreted as rules or guidelines for interaction and are, in fact, "interaction hypotheses". The individual who is unable to conceive of workable instrumental hypotheses will exhibit this in behavior which is considered deviant by the conventional society. Similarly, the individual who has learned distorted versions of sets or patterns of symbols and meanings (including motives) will exhibit behaviors described as deviant by others.

The "operational reality" by which behavior is judged as normative or deviant has a number of characteristics. Operative reality must necessarily contain a logical unity; it must make possible predictions for actors from which rational choices can be made; and it must have a self-correcting capability. It must be manageable, parsimonious, upheld over time, and relatively stable. It must provide some usable criteria for observation and measurement so that the validity of particular actions may be assessed.

Emotions, according to Blumer (1969), are the affective components of interaction, parallel to the cognitive processes as they occur. The affective component ensures the person's attitude of its vigor, preserves attitudes from change, and sustains attitudes in the face of attack. People relate on the basis of perceived emotional exchange as well as on the basis of cognition. Linesmith and Strauss (1968) believe emotions to be a learned response; a reaction not to a raw stimulus, but to a defined, classified or interpreted stimulus. The physiological components of emotions, unlike the emotions themselves, are not learned forms of behavior. People seek to evaluate their derived emotions and seek meanings from them as much as meanings are sought from the external world. Both the emotions and cognitions are involved in the definition of the situation. Emotions, according to Goffman (1959), result from the degree of contrast between the individual's self-image and the expressed opinion of others in interaction. Fernandez (1977) describes "change anxiety" as an emotion related to externally-forced change, imposed on the person's self-concept which is homeostatically disturbing. He states that to seek major changes in the self-image as acquired in earlier years entails anxiety. High levels of self-esteem, realistically supported by validated competencies, are necessary for dealing with anxiety. Fernandez explains that high self-esteem is closely linked to parental warmth, firm rules and to respect and latitude for individual action within established limits. The lack of latitude, he states, provides a condition of no freedom to make mistakes and to achieve success in one's endeavors. This narrows the range of opportunity to think for oneself, and thus to prepare for subsequent situations and conditions. Thus, high anxiety is predictable for children whose permitted latitude range is narrow or unlimited.

Cooley (1902, 1909, 1918) described emotions as being a result of "self-feeling". Rationality, he believed, is the opposite pole to emotionality and, only a very small minority of people could ever achieve rationality on a regular basis. This is due to the fact that "self-feeling" impels the person to a defense of self-stance, even when there is little evidence of possible external attack. From this condition the person arrives at the dynamics of self-pity, loneliness, anger, resentment, etc. Stone and Farberman (1970) defined "love" (a definition omitted by most persons, including scholars and clinicians who use it) as that relationship between a person and another which is conducive to the other's optimal development. It subsumes the quality of an ever-increasing competency in the interactions between the two persons, with an ever-increasing ability to understand the other, an ever-expanding ability and involvement in "taking the other into account". Thus, the ultimate "lover" becomes a "coach" for one's life work and goals, provides a critical but appreciative audience, and provides a relationship which is always open for reciprocal interactions. The more one becomes involved in the other, the less energy and capacity remains for the person to take others into account.

Thus, an intensive love relationship is not a basis for altruism. It is, in fact, quite the reverse. The alternative position, involving the shallow taking of many others into account, but never really becoming involved with one person is another definition of promiscuity. The learning to take "one" other, or a few others, into account requires such time and energy that it explains the requirement of the

marriage vow, "forsaking all others unto death". Probably this definition of "love" at its most effective level is the affective counterpart of rationality.

It is helpful to examine several types of interactions which may be described in terms of symbolic interactionism rather than in terms of more traditional explanations often utilized in criminology, psychiatry, and psychotherapy. We have based these interactional problem patterns on cognitive understandings for the most part, although emotional interactional components could be easily installed as well. The following nine cases represent most of the types of social pathology (other than somatically or externally derived behavior) which are usually identified as deviant.

For simplification we have utilized the term "Actor" to designate the person under discussion and we have designated other persons in the actor's life-space as "others".

Type #1: A Condition of Non-deviance of Normative Communication. The actor (A) perceives an event (E^1) with a minimum of emotional involvement. This event is received, decoded and recorded with a relatively neutral value loading, with a general clarity of meaning, and with related feelings of minimal disturbance of rational processes. Similar conditions of perceptions occur in other actors ($O^1, O^2, O^3, \dots, O^n$) who interact with A, and the symbols exchanged between them produce generally clear, mutually-held meanings with neutral value loadings and feelings which do not alter the rational processes of the actor and the others. The perceptions of the O's are generally congruent with each other and with A; when perceptions are not completely congruent, they are resolved by discussions between A and the O's in communication which is not notably influenced by intervening feelings or other tangential processes.

Type #2: A Modal Disturbance of Communication: The Deviant Culture. Actor perceives $E^1, E^2, E^3, \dots, E^n$, with a high value to personal self and to peers ($O^1, O^2, O^3, \dots, O^n$). The corresponding perceptions which $O^1, O^2, O^3, \dots, O^n$ receive of $E^1, E^2, E^3, \dots, E^n$ are equally positive in value loadings for A and for themselves. The high degree of congruent value loadings of each other increases their group cohesion. They like each other and reject others firmly, albeit in many instances courteously, if they are "middle-class". The congruence of value loadings for each other is soon matched by a high congruence of meanings and valuation of perceptions of $E^1, E^2, E^3, \dots, E^n$ as received by A and $O^1, O^2, O^3, \dots, O^n$. This can be interpreted as follows: people who like each other and who lose contact with others outside their clique or peer group or tight family, tend to think alike. Their meanings for symbols and their likes and dislikes begin to match. Their definitions of reality as well as their definitions of self and their worth (value loading) begin to deviate from the social mainstream's definitions. All important phenomena and experiences are linked to symbols, roles, norms, meanings, valuations, etc., as weighed by the clique or peer group. This type of closed communication network is similar to the isolated *gemeinschaft* community; norms and symbols become highly idiosyncratic and ultimately unrelated to

realities of the general population. When individuals in such a closed clique or peer culture experience "social pathology", it is likely to be related to a conflict of cultures between "the establishment" (the agent of the mainstream) and the deviant culture. Such a conflict can be an individual versus the establishment, or the deviant culture versus the establishment, or individuals from the deviant culture versus establishment or mainstream individuals.

Type #3: A Case of Communication Difficulty: "Paranoia" Actor perceives $E^1, E^2, E^3, \dots, E^n$ with meanings that differ from the perceptions of these events by $O^1, O^2, O^3, \dots, O^n$. Thus, perceptions of events that are supposedly threatening to A by A's views are perceived as non-threatening to A according to O's views, and perceptions of events that are pleasing or validating to A are perceived by $O^1, O^2, O^3, \dots, O^n$ as distasteful and non-validating for A. Whether or not a threat to A or a support for A realistically exists in $E^1, E^2, E^3, \dots, E^n$ is not relevant as long as the decisive definition of A's situation rests with A and associated O's. When a sufficient number of experiences of this type occur to A and to associated O's, we find a resultant communication condition in A which reflects the perceptions and behaviors of persons who are diagnosed as paranoid in psychiatric settings.

Type #4: A Communication Breakdown Which Parallels "Mental Illness". Actor perceives $E^1, E^2, E^3, \dots, E^n$ with value loadings which differ widely from those as perceived of the same events by $O^1, O^2, O^3, \dots, O^n$. Thus, A defines these situations differently from the way they are defined by associated O's. This becomes evident in interpersonal conflict-laden behavior between A and $O^1, O^2, O^3, \dots, O^n$. When the definitions of event posited by the O's prevail, A is viewed as mentally deviant. Actor becomes isolated from the O's as a result of lessened group validation communication between A and the O's. Actor's perception of events becomes less meaningful to the O's, and A depends more upon personal subjective validation of all events. Over time A builds a definition of reality which is completely at variance with the definition of reality held by the O's. At some point along the path of communication deterioration, a diagnosis of mental illness is posited as a psychiatric definition of A's condition.

Type #5: An Iatrogenic "Disease" of Communication (Autism). Actor (as described in Type #4) is unable to prevail upon $O^1, O^2, O^3, \dots, O^n$ in having personal definition of events and their meanings accepted. Because of ensuing interpersonal difficulties between A and associated O's, A is involuntarily committed to some institution as "mentally ill" or is pressed by associated O's to agree to voluntary commitment, in which case their definition of A is forced upon him by associated O's. Inside the institution A is taught, convinced, or pressed to affirm or re-affirm an external definition of "illness". In the process A loses a degree of validation as a person or "self" and is disarmed of past validations of self. Such validations had formerly corroborated positive values of "self" as a person in touch with reality. This condition makes A more malleable in terms of

accepting others', rather than a personally derived definition of reality. Thus, the person becomes "institutionalized" and behaves in a manner more related to getting along in the institution and meeting institutional needs than to the realities of the world beyond the institution. Thus, A focuses upon symbols and norms that have meanings particular to the institution and that have little relevance to A's orientation, to associated O's, and to the realities of persons beyond the circle of O's. Because persons with lower levels of external value validation act in ways which are expected of them by O's who have perceived higher value validation (for A or for O's), a condition designated as the "self-fulfilling prophecy" is observed. This has been described as the labelling process. The Actor's definition of reality thus becomes dichotomized with one set of behaviors and beliefs related to the O's about A and another set of behaviors and belief that A reserves for him/herself. The Actor does not present personal beliefs and behaviors to O's for evaluation or testing. When this occurs, this condition can be viewed as autism.

Type #6: Communication Difficulty Reflective of Neurosis. Actor's perceptions of phenomena are not sufficiently congruent to those of the associated O's. This incongruity may be occasioned by emotional "skewing", which may occur because of cultural differences, or differential experiences that yield differential meanings and contents. The Actor's security of self is limited by low personal evaluations derived from validations of associated O's. The disparity between A's perceptions and those of other O's is not so great as to merit ejection from the circle of associated O's, nor is the disparity so great as to occasion a complete breakdown of relationships between A and the associated O's. This disparity does, however, cause interpersonal strains that lead the O's to define A's condition as psychoneurosis. Where such psychoneurosis leads A to seek counseling or psychotherapy, the process becomes one of A's perceptions of being "remade". In this process: 1) the therapist counsels A to reshape person-derived definitions to match those of the associated O's, and/or to subdue differences of definition with the O's; or 2) the therapist supports A's own definitions with the therapist's congruent perceptions, thus validating A's definition of reality, thereby enabling A to devalue the reports of O's; or 3) the therapist helps A to redefine and adjudicate the divergent meanings and values. In this final model the therapist becomes an interpreter of meanings. This interpretation becomes a continuing process until A learns to arrive at A's own redefinitions. If A continues to rely upon the therapist for definitions indefinitely, the psychotherapeutic process becomes a prosthetic device required by A and the O's for continued communication and interaction.

Type #7: Communication Dysfunctionality as "Character Disorder". The Actor is reared among O¹, O², O³, . . . Oⁿ people who have a definition of reality which differs widely from that of other O's who are in the mainstream of society. Thus, A gains a set of symbols with meanings and valances that function well in interactions with O¹, O², O³, but which put A into severe conflict when entering into or forced into interaction with other O's. This is particularly evident with re-

lation to value loadings of symbols. Thus, symbols, norms, etc., which are highly valued by other O's, may be assigned lesser values or even negative values by A and O¹, O², O³. This is why character-disordered persons have been described as "moral idiots" in that they do not understand the definitions of what is worthwhile and important as established by the mainstream. Alternatively, A perceives that O¹, O², O³ hold divergent value positions (positions at variance with the mainstream) when, in fact, these may be misperceptions by A of the perceptions of O¹, O², O³. Under such circumstances A will develop an entire complex of situational definitions which have value loadings at variance with O¹, O², O³, and other O's. Thus, A will behave in ways which reflect a wide discrepancy of meanings between self and associated O's. The value position at variance will relate to the degree to which A is justified in satisfaction of personal needs at the expense of others (in terms of material goods, services and convenience). The Actor's view is that personal actions are justified in their own right regardless of "cost" to others, while the other O's view is that constraints on such actions do exist. The Actor, in other words, has a differential definition of "oughts" than those held by associated O's. After sufficient and lengthy conflict between A and other O's, A develops a dichotomy of views of self. Unlike types #4-6, the A does not accept the definition of reality that is provided by the O's, but seeks to re-affirm personally-derived views about self. In the process the A seeks to juxtapose personal views of reality and personal self against all others. Thus, the Actor develops little or no "trust" in others. We define trust as an individual set of expectations that selected O's will receive of one's acts and symbols with a consistently positive value loading in one's behalf. Actor's definition of a trust relationship becomes one of the degree to which the A is the recipient of materials, services and special dispensations. To A, to be trusted is to be accepted without reservations, to be secure beyond the limits of all "tests" that A makes of selected others.

The character-disordered personality, and primarily the sociopath, is someone who has little experience in the way of an externally-derived value system, or has had little success in internalizing such values. Such an individual is primarily dependent upon a collection of values derived from infancy when the bulk of inputs into the personal self were parentally related to the infant as a valued identity. The infants' only role is to be "pleasured", that is, satisfied, relieved of tensions and to reflect this condition. Thus, the antisocial personality is motivated for tension-reductive activities with few "rules of the game" to control the mechanisms for securing gratification.

Type #8: Communication Dysfunctionality Which is Reflective of the Non-somatic Mental Retardate. Actor's early rearing provides little opportunity for interactions with others beyond O¹, O², O³. Thus, A develops without an adequate set of symbols, valances and meanings and without adequate equipment, symbol sets, roles, counter-roles and norms with which he can develop a base of congruent intercommunication. The Actor is, thus, unable to build up the necessary repertoire of roles, symbols, values, meanings and concepts that must

be socially learned in order to be accepted as a societal actor. Thus, A is unable to participate in further learning either on a societal interacting basis or on an individual basis and this incapacity makes expanded intercommunication with others less feasible. Others also react to A with the view that A is unable to exchange highly-developed concepts. Thus, non-somatic mental retardation is a communication dysfunction involving the individual and many others around him.

Type #9: Communication Dysfunctionality as Emotional Retardation. Actor is highly valued by O¹, O², O³ to the degree that most of his observations and reports are validated by O¹, O², O³ regardless of their congruency with external realities. Actor's tensions or strivings are promptly serviced by O¹, O², O³, so that A becomes experientially deprived. Actor becomes a simplistic perceiver with low tolerance for delayed gratification. Thus, A undergoes severe dissonance when presented with counter-evaluations of personal self and personally derived perceptions by O's other than O¹, O², O³. Interpersonal conflict occurs between A and others beyond O¹, O², O³ at this point. Actor's behavior may resemble that exhibited by Type #7 if A's communication and understanding of difficulties cause A to be juxtaposed against the constraints of the "establishment".

It should be noted that each of the foregoing clusters of deviant populations is marginal to the mainstream's operational realities. As such, they are socially distant from others in the mainstream, and communication and interaction between them and the mainstream is minimal. At times deviant cultures become dependent for material support upon the mainstream despite their lack of mutual communication. The preclusion of interaction between such population elements and the mainstream tends to perpetuate the exclusionary process and specialized nonmainstream-related "coping mechanisms".

These nine cases we have presented do not exhaust the typology of deviance in our society. Deviance is a matter of degree, and is discernable in terms of the frequency and depth of validated interactions between the actors. Validity in this usage is related to exchange theory in that the less valid exchanges are not mutually productive for the individual actor and the society. Deviance can be viewed in this sense in terms of its degree of social disturbance. Deviance that does not invade the privacy or rights of others and does not create a dependency upon the efforts of others might be described as being within cultural limits.

Unlike the view of the individual as fated and determined, as viewed by Freudian and behavioristic orientations, symbolic interaction theory views the individual as a major participant in the making of himself. A deterministic view of personality would occur only where the individual has failed to develop role repertoires for internal and external interactions (Secord, Backman, & Slavitt, 1974). The model of man used in symbolic interaction theory involves the ability and opportunity to make choices about one's actions. The fewer roles and role equipment, norms, meanings, symbols, and so forth, a person has acquired and can use, the less able is the person to relate skillfully to particular societal demands, and the less chance to be perceived as a free and independent human

being. The more capable the Actor is to make choices and to follow them, the more rational, undeterministic and human the Actor is or becomes.

From the symbolic interactionist view, "social pathology", mental illness, mental retardation, psychoneurosis, sociopathy, emotional disturbance and social deviance may thus be considered as resulting from variant forms of dysfunctional or biased/restricted early social learning. Society defines mental disturbances as anything so labelled by psychiatry. Psychiatrists and related professionals, according to Szasz (1961), base their determination of mental disorder on the degree to which the acts of an individual disturb or challenge the consensus. The view of mental illness as deviance in the integration of one's view of self and felt identity from such externalities as official position, jural relations and style of life espoused by various institutions has been presented by Goffman (1959). An explanation of the dynamics of mental illness as a breakdown of the communication processes which make up the view of self, felt identity and perception of the externalities experienced by the person is highly congruent with this view.

Symbolic interaction theory has an heuristic and practical advantage over other psychodynamic theories because it explains individual behavior in relation to the social situation. Unlike other theories, it openly explains the social mainstream standards that are used to define deviance and it removes the need to relate an inapplicable medical or other model to the hidden standards of social and cultural acceptability and "normality".

Symbolic interaction theory does not presume the existence of an unconscious or libidinal force as in psychodynamic theory. Neither does it posit the condition of "illness" for individuals who exhibit deviance. It does not presume that mental disorder is anything more than the product of the social experiences of a person. It does not establish diagnostic positions, but instead views all human patterns of acting as part of a spectrum of behavior. It provides opportunity for research-oriented study of "mental disorder" without requiring acceptance of preconceived, untestable paradigms. Finally, it provides for social explanation of such disorders.

The adoption of a symbolic interaction explanation of mental disorder would put responsibility for causation of deviant dysfunctionality where it belongs — on ineffective early social-learning patterns/roles and on those who transmit them. Such a theoretical orientation would deny legitimization for explanations of dysfunctional deviance which place the "blame" solely on "the system" or on the "victim" or on the person's medical condition. It would deny the medical establishment the opportunity to perpetuate "treatment" programs for which no evidence of efficacy exists. It would provide a rigorous method of study and opportunities for the professions and institutions to encourage more effective communication and parenting. This theory would shift the emphasis of treatment from a heightened clinical focus on the patient to the developmental, environmental and social context of the actors related to the dysfunctionality.

In summary, a view of human behavior has been presented which is neither "over-psychologized" nor "over-socialized". It provides a method of behavioral

analysis that neither ignores the social system nor the activity of the individual. It provides a method of behavioral analysis that views deviance neither as a medical illness nor as a social result. It provides an analytic scheme that views deviance as a peculiar product of individual and social system interactions. The latter rests upon definitions provided by the social system and those accepted by the individual. As such, it defines deviance for what it is, rather than for what it is not, and it views deviance not as a result of fate, hidden libidinal urges, or inadequate conditioning. Rather, it views man as a potentially free individual instead of a prisoner of fate or a victim of chance. The view presented here frees the person from inappropriate and irrelevant labelling and places responsibility for one's behavior on one's self as well as on the social organization of which the person is a full member. As such, symbolic interaction theory provides a mechanism of viewing mankind and mankind's behavior which long has been needed by professionals and academic behavioral scientists.

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FOOTNOTES

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ATIVIDADE E PASSIVIDADE EM ATITUDES SOCIAIS DE ESCOLARES BRASILEIROS: UM ESTUDO EM FUNÇÃO DE RELIGIÃO E SEXO

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Com base no enfoque sócio-cultural de Díaz-Guerrero foram estudadas as características de atividade, passividade e o grau de concordância na percepção do Eu Real e Eu Ideal em 355 estudantes brasileiros de 8ª série do 1º Grau de três religiões distintas, de ambos os sexos. O instrumento utilizado foi construído a partir do instrumento elaborado por Hereford et al., por sua vez, inspirado no Inventário de Atitudes Sociais de Lucas e Horrocks. Os resultados evidenciaram que, embora atividade e passividade bem como a concordância entre o Eu Real e o Eu Ideal não sejam influenciadas pela variáveis religião e sexo, os sujeitos em geral se caracterizaram pelo estilo ativo de enfrentamento do stress e pelo elevado grau de concordância entre o Eu Real e o Eu Ideal.

Using Diaz-Guerrero's socio-cultural approach, the characteristics of activity, passivity and perceived correspondence between the real self and the ideal self were studied in a total sample of 355 Brazilian 8th grade students of both sexes, who represented three distinct religions. The measuring instrument was developed from that of Hereford et al., which in turn was based on the Social Attitudes inventory of Lucas and Horrocks. The student group as a whole was characterized by active ways of meeting stress and a high degree of correspondence between real self and ideal self perceptions, with no discernible variations that could be related to sex or religious differences.

Num esforço de buscar subsídios teóricos que permitam construir um melhor conhecimento do escolar brasileiro, utiliza-se, neste estudo, o enfoque sócio-cultural de Díaz-Guerrero (in Hereford, Selz, Stinning, & Natalicio, 1967):

... percebo uma sócio-cultura como um sistema de premissas sócio-culturais interrelacionadas que regulam ou governam os sentimentos, as idéias, a hierarquia das relações interpessoais, as regras da interação entre os indivíduos, a estipulação entre os tipos de papéis sociais, o onde, quando, com quem e como desempenhá-los. Tudo isto é válido para interações dentro da família, a família colateral, os grupos, a sociedade, as superestruturas institucionais: educacionais, religiosas, de governo; e ainda a maneira de encarar a vida, a forma de perceber a humanidade, etc... (p.33).

A sócio-cultura é, portanto, a agência de influência ambiental. No quadro de referência de Díaz-Guerrero a concepção é cognitiva, mas se alinha claramente com o ambientalismo, resultando interacionista. Para ele os determinantes da conduta são as idéias, em forma de premissas generalizadas, as Premissas Sócio-Culturais (PSC). As ações do indivíduo em determinado ambiente não são meras expressões de desejos reprimidos no inconsciente. O sujeito também não é um autômato acionado apenas por impulsos e estímulos. Suas ações são conclusões lógicas dos postulados da sócio-cultura, expressam um complexo sistema "capez de por em ação complexos programas aprendidos e adaptados flexivelmente a cada situação" (Domenech, in Díaz-Guerrero, 1972, p. 107).

Utilizando o modelo de comportamento humano frente à vida, aos problemas da existência, ao *stress*, Díaz-Guerrero propõe o estudo da dimensão "atividade", sublinhando que todas as culturas em seu desenvolvimento chegaram a maneiras adequadas de manipular o *stress* de viver.

Segundo tal modelo poderiam ser identificados dois estilos de enfrentamento: um ativo e outro passivo, podendo haver em culturas diferentes a predominância de um ou de outro desses estilos.

No primeiro caso, o indivíduo enfrenta as situações mudando o ambiente e apresenta, entre outras, características de auto-confiança, ação prática, autonomia, franqueza, rapidez e competição. No enfrentamento passivo, ao contrário, o indivíduo se modifica, apresentando características tais como: inação, pensamento reflexivo, autodesconfiança, dependência e cooperação.

Segundo Díaz-Guerrero (1967) e Hereford et al. (1967), síndromes ativas caracterizariam atitudes sociais em estudantes norte-americanos, enquanto síndromes pasivas, ou tão passivas quanto ativas caracterizariam mexicanos e, possivelmente culturas menos industrializadas. Uma possível hipótese explicativa para a dimensão passividade na cultura mexicana seria a formação religiosa.

Comparações interculturais entre populações de escolares em diferentes partes da América—anglo e latina—têm aberto perspectivas para a investigação dos efeitos que possam ter as premissas sócio-culturais em atitudes

sociais de escolares brasileiros. Pressupõe-se que possam também ser investigadas através delas as variáveis cujas implicações sejam significativas para o conhecimento de atitudes culturalmente determinadas, como ainda para um melhor conhecimento de comportamentos decorrentes de tais premissas.

O presente estudo, que se caracteriza como pesquisa exploratória, teve como propósitos: (a) Estudar a atitude de escolares brasileiros, em situações sociais, quanto às dimensões atividade e passividade; (b) Investigar o grau de concordância da percepção do Eu Real e Eu Ideal dos sujeitos, em relação a essas atitudes; e (c) Verificar a influência das variáveis religião e sexo nas atitudes estudadas.

MÉTODO

Sujeitos

A amostra deste estudo foi constituída de 355 sujeitos, sendo 152 católicos (74 masculinos e 78 femininos), 64 protestantes (33 masculinos e 31 femininos) e 139 israelitas (72 masculinos e 67 femininos). Portanto, do total de 355 sujeitos, 179 eram do sexo masculino e 176 do feminino.

Todos os sujeitos selecionados para este estudo pertenciam ao nível sócio-econômico médio superior e eram alunos de 8ª série do 1º Grau de três escolas de orientação católico, três de orientação protestante e três de orientação israelita, respectivamente. A idade dos sujeitos variou de 13 a 16 anos, sendo a média 14 anos e a idade mais freqüente também 14 anos.

Instrumento

Para a composição do instrumento da presente pesquisa, foram selecionados alguns itens do instrumento elaborado por Hereford et al. (Op. Cit.) e outros do estudo de Peck et al. (1972), ambos derivados do inventário de Lucas e Horrocks (1960).

O instrumento, assim construído, constou de vinte itens, sendo 10 referentes a atitudes sociais ativas e 10 a atitudes passivas.

Cada item inclui uma afirmação sobre um(a) adolescente hipotético(a) que reage de forma ativa ou passiva (dependendo do item) diante de determinadas situações sociais. A afirmação é seguida de duas questões: "Você é como ele(a)?" e "Você gostaria de ser como ele(a)?" e o sujeito responde "Sim" ou "Não" a cada uma delas.

Como se vê, a primeira questão indica se a atitude do sujeito que responde ao questionário corresponde à do adolescente hipotético, isto é, se é ativa ou passiva e se refere ao Eu Real; a segunda questão, por outro lado, que pretende revelar o que o sujeito gostaria de ser—ativo ou passivo—refere-se ao Eu ideal que pode estar ou não em concordância com sua atitude indicada na primeira questão. Assim, o instrumento possui

um duplo objetivo: verificar o tipo de atitude social do sujeito nas dimensões atividade e passividade, bem como a concordância entre o Eu Real e o Eu Ideal, em relação a essas dimensões.

A título de exemplo, transcreve-se, a seguir, um dos itens ativos da forma masculina do instrumento:

“Ernesto tenta fazer com que seus pais mudem de idéia, quando eles estão errados.”

	Sim	Não
Você é como ele?	()	()
Você gostaria de ser como ele?	()	()

Consideradas as duas perguntas em conjunto, o sujeito poderia responder portanto, com uma das seguintes respostas: Sim-Sim, Sim-Não, Não-Sim ou Não-Não. As interpretações neste caso seriam as seguintes: a resposta Sim-Sim indica atitude social ativa (neste item) e concordância entre Eu Real e Eu Ideal. Uma resposta Sim-Não revela uma atitude social ativa que, no entanto, está em discordância com o que o sujeito gostaria de ser. De outro lado, uma resposta Não-Sim a um item ativo (como no exemplo), indica atitude social não-ativa, a qual está em discordância com o que é desejado pelo sujeito ao responder Sim à segunda pergunta. Finalmente, uma resposta Não-Não a um item ativo indica atitude não-ativa e concordância entre o Eu Real e o Eu Ideal do sujeito.

No caso dos itens passivos, como por exemplo: “Mara tinha medo de nadar na piscina funda, mas ela disse que não queria nadar porque estava cansada”, as interpretações das respostas Sim-Sim, Sim-Não, Não-Sim e Não-Não, *mutatis-mutandis*, seriam as mesmas.

Por conseguinte, a resposta Sim-Sim seria interpretada como querer e realizar um certo comportamento; a resposta Sim-Não indicaria a realização de um certo comportamento não desejado; Não-Sim seria a não-realização de um comportamento desejado e Não-Não a rejeição total de um certo comportamento.

A avaliação se efetuou considerando-se, de um lado o conjunto de itens ativos e de outro o de itens passivos atribuindo-se os seguintes valores: resposta Sim-Sim = 2, resposta Sim-Não ou Não-Sim = 1 e resposta Não-Não = 0. Desse modo, cada sujeito teve um escore variável de 0 a 20 para a dimensão atividade e outro de 0 a 20 para a dimensão passividade.

Em verdade, o instrumento, embora único, pode ser considerado como sendo constituído de duas partes distintas: uma pra avaliar a atividade e outra para avaliar a passividade.

Quanto ao aspecto percepção do Eu Real e Eu Ideal, foi medida a concordância entre as respostas à primeira e à segunda questões, independentemente de o item ser ativo ou passivo. Neste aspecto (Eu Real e Eu Ideal), portanto, as duas partes do instrumento funcionam somadas e produzem um único escore. Foi atribuído um ponto a cada item cuja resposta fosse concordante (Sim-Sim ou Não-Não). Assim, cada sujeito pode receber um escore variável de 0 a 20 e quanto mais próximo de 20 o

escore do indivíduo, maior a concordância entre o Eu Real e o Eu Ideal e vice-versa, quanto mais próximo de zero, menor a concordância.

Procedimento

A aplicação do instrumento foi de forma coletiva e a avaliação dos questionários respondidos teve em vista, como ficou acima esclarecido, as variáveis: (a) atividade, (b) passividade e (c) concordância entre percepção do Eu Real e Eu Ideal.

Dessa forma obteve-se para cada sujeito um escore para atitude ativa, um para atitude passiva e um escore para a concordância entre a percepção do Eu Real e Eu Ideal.

RESULTADOS

Antes de serem apresentados os resultados propriamente ditos, convém esclarecer que o instrumento utilizado pelos resultados de sua aplicação, evidenciou que atividade e passividade são duas dimensões distintas e não polos opostos de uma mesma dimensão. Em outras palavras, não seriam medidas num *continuum* reveladas por um único escore, em que a maior magnitude indicasse o máximo de atividade e em contrapartida o mínimo de passividade; e, por outro lado, a menor magnitude indicasse o mínimo de atividade e o máximo de passividade.

Isto foi verificado através de um estudo correlacional de resultados médios obtidos em itens ativos de um lado e itens passivos de outro, cuja atribuição de valores aos diferentes tipos de respostas foi realizada considerando-se que ativo e passivo se oporiam numa única dimensão. Neste caso, os valores atribuídos foram: para item ativo, resposta Sim-Sim = 2, Sim-Não ou Não-Sim = 1, Não-Não = 0; para item passivo, resposta Sim-Sim = 0, Sim-Não ou Não-Sim = 1 e Não-Não = 2.

A correlação obtida nesta análise foi nula de onde se deduz que os itens ativos e os itens passivos funcionam, ao que parece, medindo dimensões distintas dos sujeitos.

Desse modo, considerou-se atividade e passividade como duas variáveis distintas que foram medidas através de um instrumento, respectivamente por itens apropriados e cuja avaliação revelasse medidas independentes, o que foi possível por intermédio da atribuição adequada de valores aos diferentes tipos de respostas.

Os resultados são apresentados a seguir em duas partes: a primeira relativa aos resultados médios e a segunda relativa à análise de variância.

Relativamente à dimensão atividade os resultados médios se encontram na Tabela 1.

Tabela 1
MÉDIA E DESVIO PADRÃO RELATIVOS À DIMENSÃO ATIVIDADE
EM FUNÇÃO DE RELIGIÃO E SEXO (N = 355)

Resultados	Católicos		Protestantes		Israelitas	
	Masc.	Fem.	Masc.	Fem.	Masc.	Fem.
Média	14,62	15,08	14,97	13,77	13,69	14,36
Desvio Padrão	2,40	2,36	1,86	2,33	2,68	2,16

Observa-se que entre as religiões estudadas as diferenças são mínimas no que diz respeito à dimensão atividade. Observa-se ainda, que os resultados relativos à variável sexo são bastante próximos.

Quanto à dimensão passividade, os resultados médios são apresentados na Tabela 2.

Tabela 2
MÉDIA E DESVIO RELATIVOS À DIMENSÃO PASSIVIDADE
EM FUNÇÃO DE RELIGIÃO E SEXO (N = 355)

Resultados	Católicos		Protestantes		Israelitas	
	Masc.	Fem.	Masc.	Fem.	Masc.	Fem.
Média	5,72	6,06	5,58	5,65	4,74	5,22
Desvio Padrão	2,97	2,64	2,76	3,03	2,75	2,82

Como nos resultados relativos à dimensão atividade, observa-se que na dimensão passividade as diferenças são mínimas tanto entre as religiões consideradas, quanto entre os sexos.

Entretanto, comparando-se os resultados médios em atividade com os resultados médios em passividade (Tabela 1 e Tabela 2), verifica-se que o escore médio, em todos os casos, é mais alto na dimensão atividade do que na dimensão passividade.

Com relação à percepção do Eu Real e Eu Ideal, os resultados médios são apresentados, em termos de concordância, na Tabela 3.

Os dados da Tabela 3 indicam que os sujeitos percebem o Eu Real e o Eu Ideal, em grande proporção, de maneira concordante, independentemente das religiões, não havendo discrepâncias também, relativamente à variável sexo.

Tabela 3

MÉDIA E DESVIO RELATIVOS À CONCORDÂNCIA NA PERCEPÇÃO DO EU REAL E EU IDEAL EM FUNÇÃO DE RELIGIÃO E SEXO (N = 355)

Resultados	Católicos		Protestantes		Israelitas	
	Masc.	Fem.	Masc.	Fem.	Masc.	Fem.
Média	14,82	14,29	15,42	14,23	14,81	14,18
Desvio Padrão	3,10	3,55	2,90	3,63	2,91	2,86

Considerando-se que o escore de discordância é complementar ao de concordância (C + D = 20), isto é, que a diferença entre 20 e o escore obtido em concordância significa o escore de discordância, deduz-se que a concordância entre Eu Real e Eu Ideal é maior do que a discordância em todos os casos.

Com o propósito de se verificar a significância das diferenças entre as médias obtidas nas variáveis estudadas, utilizou-se a análise de variância para as dimensões atividade, passividade e concordância, tendo como fontes de variação a religião e o sexo. O F calculado em cada caso, entretanto, não foi significativo ao nível estabelecido de 0,01.

DISCUSSÃO

Por intermédio da análise dos resultados pôde-se constatar que escolares brasileiros, representados pela amostra estudada, têm um grau de atividade bem acima do termo médio e um grau de passividade bem abaixo do termo médio, ou seja, caracterizam-se mais por um estilo ativo de enfrentamento dos problemas da vida e menos por um estilo passivo em suas atitudes sociais.

Relativamente à variável religião, os resultados sugerem que ela não é um fator determinante nas atitudes sociais tal como se poderia supor. Com efeito, considerando-se a concepção de Diaz-Guerrero (1972) sobre a influência das premissas sócio-culturais (PSC) nas atitudes sociais de modo geral e, em particular, no estilo de enfrentamento do *stress*—se ativo

ou passivo—poder-se-ia supor que religião, enquanto um dos fatores de PSC, poderia concorrer par o tipo de atitude social do indivíduo.

Embora os resultados tenham contrariado essa expectativa, é possível levantar algumas hipóteses rivais que possam explicá-los.

A primeira delas diz respeito à classe social a que pertencem os sujeitos, ou seja, é possível que a classe social, como um dos fatores de PSC, determine o tipo de atitude social—ativa ou passiva—de forma mais efetiva do que a religião. Assim, o fato de não haver diferenças entre os grupos de sujeitos pertencentes às diferentes religiões poderia ter explicação no fato de que todos os sujeitos pertencem à mesma classe social. A propósito, Hereford et al. (1967) sugerem que o fator classe social pode ser relevante na determinação das atitudes sociais.

Aliás, em estudo anterior, Angelini e Rosen (1964), ainda que tendo objetivos diversos aos desta pesquisa, encontraram mais semelhanças entre indivíduos pertencentes à mesma classe social, porém de culturas diferentes, do que entre indivíduos de distintas classes sociais de uma mesma cultura.

Uma outra hipótese rival que poderia explicar os resultados relativos à religião está ligada ao fato de que a amostra utilizada nesta pesquisa é constituída de sujeitos residentes em área urbana que se caracteriza como uma subcultura regional, o que implica experiências semelhantes e, provavelmente, premissas sócio-culturais comuns.

Portanto, pode-se supor que o fator religião tenha pouca ou menor contribuição nas atitudes sociais dos sujeitos haja visto a homogeneização no estilo de enfrentamento do *stress*, em virtude de todos os sujeitos serem brasileiros, ainda que alguns pudessem ser de ascendência estrangeira, e que, dentre as várias subculturas que compõem a cultura brasileira, pertencem a uma mesma subcultura, no caso, a urbana.

Em suma, a semelhança quanto ao tipo de atitude social entre sujeitos pertencentes a diferentes religiões pode ser atribuída à homogeneidade da amostra quanto ao nível sócio-econômico e à subcultura regional em que vivem.

Por outro lado, se excluídas estas hipóteses rivais, os resultados indicariam que a religião não é um fator relevante na determinação de atitudes sociais, como se poderia supor.

Sugere-se, portanto, a realização de outros estudos complementares em que se levem em conta as variáveis classe social, origem urbana ou rural da população, além da religião e sexo, e as interrelações entre tais variáveis.

Quanto aos resultados em função de variável sexo, eles sugerem que o estilo de enfrentamento é comum, ou seja, as PSC não são discriminativas em relação a sexo, em se tratando de atitude social ativa ou passiva.

Pode-se constatar ainda, por intermédio da análise dos resultados, que nas três religiões e em ambos os sexos, o nível de atividade foi bastante elevado, enquanto que o de passividade foi baixo, ou seja, independente-

mente de religião e sexo, os sujeitos reagem ao *stress* com alto grau de atividade e baixo grau de passividade.

Esse resultado também encontrado no estudo de Hereford et al. (1967) em relação às culturas norte-americana e mexicana, pode ser interpretado, tal como o foi no referido estudo, como relacionado à faixa etária a que pertencem os sujeitos (adolescentes). Em geral, indivíduos desta faixa etária apresentam um nível de atividade mais elevado, comparado com a população em geral, em função das características próprias à idade.

Outra explicação refere-se novamente à classe social, isto é, este resultado pode ser interpretado como produto da classe social a que pertencem os sujeitos—média superior e por isto, muito provavelmente, recebem orientação no sentido de desenvolver mais síndromes ativas (competição, auto-afirmação, auto-confiança, autonomia, etc.) em suas atitudes sociais. Esta explicação indica, mais uma vez, a conveniência de se estudar a hipótese relativa à classe social.

Uma terceira hipótese também sugerida por Hereford et al., é a de que os itens ativos podem ser mais atrativos o que determinaria um número maior de respostas positivas a estes itens. Deve-se considerar, no entanto, a este respeito que se os itens ativos são mais atrativos e são justamente porque as PSC veiculadas os tornam atrativos e, assim, responder um número maior de vezes aos itens ativos pode não estar revelando exatamente o que o sujeito é, mas, em contrapartida, revela quais são as PSC mais aceitas na cultura ou subcultura considerada.

Finalmente, os resultados a respeito do grau de concordância da percepção do Eu Real e Eu Ideal indicam que os sujeitos são mais concordantes do que discordantes, o que vale dizer que, em geral, eles percebem seu Eu Real e o Eu Ideal como iguais.

Considerando-se estes resultados em função das variáveis religião e sexo, verifica-se que os sujeitos, de modo geral, independentemente de religião e sexo, aceitam as atitudes sociais que efetivamente desempenham.

Tendo em vista o fato de que os sujeitos evidenciaram alto grau de atividade no estilo de enfrentamento de situações sociais, conclui-se que este tipo de atitude social—a atividade—está de acordo com o que estes sujeitos idealizaram para si.

Em resumo, pode-se afirmar que os sujeitos se caracterizam, em geral, como tendo estilo ativo de enfrentamento e o têm como comportamento ideal, isto é, eles são ativos e querem ou gostam de ser ativos.

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Footnotes

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IMMEDIATE STIMULATION AND RECENT EXPERIENCES AS CONTROLLING FACTORS IN THE PREDATORY SEQUENCE OF THE SPIDER *ARGIOPE ARGENTATA* (FABRICIUS)

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*Experimental analysis of predatory behavior of the orb-web spider *Argiope argentata* (Fab.) reveals the existence of two closely integrated types of control: control by immediate stimulation and control by recent experience. During prey location, the spider follows the vibration of web threads and can eventually adjust its locomotion to changes in position of the insect without returning to the hub. The capture strategy used with flies also depends on present stimulation: wing vibration is an essential stimulus for the elicitation of biting attacks. Prey hoarding, which occurs when an insect enters the web during ingestion by the spider of a previous one, and return to the hub at the end of the predatory sequence are clear instances of the influence of information stored in memory. The spider's behavior, which is more than a simple chain of reactions, constitutes an interesting model for the study of memory as a factor in the integration of instinctive sequences.*

*A estimulação imediata e a experiência recente como fatores controladores da seqüência predatória de aranha *Argiope argentata* (Fabricius).*

*A análise experimental do comportamento de caça da aranha orbitela *Argiope argentata* (Fab.) desvenda a existência de dois tipos integrados de controle: o controle pela estimulação imediata e o proveniente de eventos da experiência recente. Durante a fase de localização da presa, a aranha guia-se pela vibração dos fios da teia, sendo eventualmente capaz de ajustar sua locomoção às mudanças de posição do inseto mesmo sem voltar ao centro. O modo de captura de uma mosca também depende estreitamente do contexto presente: a vibração de asas da presa é essencial para o desencadeamento da mordida direta. No armazenamento de um inseto, que ocorre quando apresentado durante a ingestão de outro, e no reencontro do centro, no final da seqüência, está clara a influência de uma informação conservada na memória. O comportamento de aranha, que não pode ser descrito em termos de simples encadeamento de reações, constitui um model interessante para o estudo da memória como elemento integrador de seqüências instintivas.*

The orb-weaver *Argiope argentata* (Fabricius) shows a complex sequence of responses whenever an insect enmeshes itself in the sticky spiral of the web. This sequence includes an orientation response, locomotion, capture and return to the center of the web (Robinson, 1969; Robinson & Olazarri, 1971; Ades, 1969; Ades, 1973a). An interesting feature of the sequence as a whole is its relative variability, both in repeated performance of the same animal and in performances by different ones. This feature cannot be accounted for by any simple model of the spider's behavior and impels one to look for an explanation in terms of interrelated factors.

Using as examples preliminary data collected in our laboratory, we shall attempt to show that there are, among others, two important kinds of controls which can be assumed to coordinate behavior elements in the spider's predatory sequence. (a) *Control by present stimulation*: some responses, in the repertory of *Argiope argentata*, seem to depend principally on the occurrence of very specific environmental stimuli. As will be seen in the first part of this paper, locomotion and biting, when appearing in some circumstances, can be considered as stimulus-bound reactions, (b) *Control by experience*: there are instances in which the appearance of a behavior pattern cannot be solely attributed to the influence of present stimuli. Its release depends on previous movement sequences performed or on stimuli that impinged earlier on the spider's receptors. Effects of recent experience appear to exist in what we have called the hoarding of prey and also in the orientation of the spider when returning to the center. These topics, very briefly presented, constitute the last part of the present paper.

Prey location. In thousands of sequences observed, we have very infrequently seen a spider miss a prey. Previous investigations have shown that this ability to locate the struggling insect is dependent on the vibrations that travel along the treads. If the vibrations stop, the spider almost always stops walking. If the vibrations resume, locomotion begins once more. *A. argentata* generally follows a single radius (or a pair of radii) from its central retreat to the capture-site. It has been nevertheless demonstrated that other threads of the web can contribute as vibration transmitters and as guides to the hunting spider (Ades, 1973b).

Here, we shall examine a commonly held belief according to which a spider needs to stay in the center of the web in order to orient itself correctly to the source of vibrations. Robinson (1969), for instance, asserts that although *A. argentata* can detect a prey from the periphery of the web, it seems to be unable to locate it without returning first to the hub.

In order to put this hypothesis to test, the following procedure was used: a living fly was held for a short time near a radial thread at the periphery of the web, some 6 cm. from the center of the hub (Position 1). When the spider, attracted by the vibrations, came close, the insect was withdrawn and quickly dropped in another place of the sticky spiral (Position 2). Position 2 remained at about the same distance from the center of the hub but was separated from Position 1 by angles of approximately 45° (Group 45), 90° (Group 90), 135° (Group 135) and 180° (Group 180). 12 spiders were observed in each condition. If the above

mentioned hypothesis were true, we would expect all spiders to return to the center before successfully orienting to the prey in Position 2.

In Group 45, that was clearly not the case: 10 out of 12 spiders were able to capture their prey by moving *directly* toward it, that is, without traversing the center. In Group 90, on the contrary, 11 out of 12 spiders chose the path that intersected the central region and, in Groups 135 and 180, all spiders went to the hub before locating the fly.

These results may be attributed to the influence of web structure in the transmission of mechanical impulses. When Position 2 is not too distant from Position 1, intense vibrations can possibly reach the spider in part *via* spiral threads. When a certain distance is reached, radii assume a major role in conduction and, by following them, the spider necessarily passes by the center. Be it as it may, we have here a good example of stringent control by present stimulation.

Capture. *A. argentata* either wraps a fly or else bites it immediately, after coming into contact with it. What response is elicited seems to depend mostly on the stimuli that the spider gathers at the capture-site, more specifically, on whether the fly is vibrating regularly or not.

In a first experiment, designed to investigate the "decision" process that occurs at the capture-site, the performance of two groups of spiders was compared: in Group I ($n = 34$, 65 observations), live flies, able to produce regular vibrations with their wings, were carefully deposited in the sticky spiral. In Group II ($n = 36$, 65 observations), the prey offered were flies which wings had been cut so as to prevent them from generating regular vibrations. These flies could, however, move their legs and were easily located by the spiders.

As shown in Table I-A, the spiders reacted differently to normal and wingless flies. Normal flies were quite consistently captured by an immediate bite. Wingless flies, after being touched by the palps, were mostly wrapped in silk at the capture-site ($\chi^2 = 86.6; p > 0.01$).

Table 1

Percentages of biting and wrapping episodes when spiders are offered (A) normal or wingless flies and (B) dead flies, vibrating or agitated.

PREY	CAPTURE REACTION	
	BITE	WRAP
<i>A</i>		
Normal fly	93.8	6.2
Wingless fly	12.4	87.6
<i>B</i>		
Dead fly: vibrated	83.9	16.1
Dead fly: agitated	15.6	84.4

The results were not, however, entirely conclusive: spiders could have discriminated some chemical modification on the body surface of wingless flies or the presence or absence of wings, without necessarily using vibration as a cue. So, in a second experiment, intact, dead flies were thrown on the sticky threads. In Group I ($n = 15$, 31 observations), the insects were set into motion by letting a live, normal fly vibrate near them. The live fly was, of course, withdrawn as the spider came near the dead one. In Group II, ($n = 15$, 32 observations), insects were agitated by pushing them, irregularly, with a pin. The results (Table I-B) were quite similar to those of the first experiment. Dead flies were bitten when their body vibrated at a frequency similar to that of a normal fly, and were wrapped if only agitated intermittently ($\chi^2 = 28.7$; $p > 0.01$).

Table I shows, however, that some of the normal flies and of the dead, vibrated flies were wrapped. It also shows that wingless and dead, agitated flies were sometimes bitten. These discrepancies from the general tendency suggest that factors other than vibration can influence the first capture responses.

One of the striking features of the biting reaction is that it can be elicited (by a vibrating normal fly) when the spider is in its resting, cruciform posture and even when it has been removed from the web. The biting reaction may represent, in *A. argentata*, an adaptation to the hunting of winged insects of a certain size which can quickly escape from the web. Further investigation of this point is needed.

Hoarding. A spider which is ingesting a fly in the center of its web reacts promptly to another fly. After it has wrapped this second prey, it leaves it most of the time at the capture-site (hoarding), returns to the center and shows various "search" responses, such as moving alternately the palps, flexing legs I or legs III, etc. until the remains of the first insect are localized (Ades, 1972).

In a series of controlled observations, conducted in our laboratory, it was shown that fly I is predominantly retrieved to the center, while fly 2 is, in most cases, hoarded if it enters the web during the spider's ingestion of fly I. There are two possible explanations for this capture-dependent change in behavior. Either the spider, when attacking fly 2, detects some stimuli which release hoarding (such stimuli can proceed from fly I, hanging in the hub, or from some damage in the web caused by the first predatory sequence) or it is controlled by some experiential factor, generated during the capture and retrieving of fly I.

If the first alternative were valid then: (a) a spider would hoard fly I when exposed, during the sequence, to stimuli that are normally present when a second fly is hunted; (b) a spider would retrieve fly 2 in a situation devoid of the external cues that originate from the first predatory sequence.

In one of our experiments, a fly, already wrapped in silk, was hung in the center of a spider's web. Another, live fly was then dropped at the periphery. Most of the spiders, despite the fact that a fly was available, hanging from the hub, reacted to the live fly by retrieving it. In a further experiment, fly I was cut from the center, during the capture of fly 2. Although the spiders, after this interference, could not be said to be influenced by cues left during the first sequence, most of them

hoarded fly 2. The results of these two experiments, when taken together with other data, provide some evidence for believing that hoarding can be influenced by recent experience.

Return to center. When *A. argentata* hunts in the lower part of the web, it can find its way back to the center by climbing on the dragline. But this method is surely not the only one, as suppression of the dragline does not impede a successful return.

The spider can also use cues from web structure to orient itself. Animals that are taken away from their webs and put in some other part of their own box can often be seen, later, in the central region of the web. This discrimination of structural relationships between threads is not a *sine qua non*: a spider, hunting on a single radius which has been isolated from surrounding spiral threads and radii, does not seem disturbed when returning to the center. *A. argentata* could be expected to have a tendency to invert its initial direction of locomotion, after capturing a prey or simply reaching the capture-site (Peters, 1932). This assumption would help to explain how the spider manages to return when hunting on a single radius, in a horizontal web. As regards this hypothesis, nevertheless, circumspection must be used until more empirical support is obtained.

Some experiments, which followed Peters' work with *Araneus diadematus* (Peters, 1932) suggest that the spider, on its way to the insect, stores some spatial information which influences, later, the direction of its locomotion to the center. In one of these experiments, spiders on a vertical web were enticed to run downward by putting a live fly on the inferior vertical radius. After each spider had begun capturing its prey, the entire web was rotated 45° (Group 45, $n = 15$), 90° (Group 90, $n = 15$) or 180° (Group 180, $n = 15$), clockwise.

In Group 45, all spiders went directly to the center after completing the capture movements. Their performance was very similar to the performance of spiders in control conditions. In one case, a slight, upward oriented deviation of the trajectory occurred and was soon corrected. In Group 90, some of the spiders (about 33%) showed very interesting errors in orientation: they began walking toward the center's original direction, that is, upward, but later adjusted their path and followed a radius that led to the center. Spiders in Group 180 were quite disturbed: all of them went upward, walking away from the new position of the center. After reaching the frame threads, some spiders were unable to find the central region and remained lost in the region of irregular threads that surrounds the upper part of the web.

The results seem to support the view that *A. argentata* is guided, as it starts returning to the center, both by kinesthetic cues and by aspects of web structure, and that the process is influenced somehow by information gathered during prey location. Barth and Seyfarth (1971) has shown that the destruction of the lyriform slit sense organs, in *Cupiennius salei*, severely affected kinesthetic orientation. It would be interesting to investigate the role played by these organs in *A. argentata*'s return to the center.

Integration of the spider's behavior. The behavior of an orb-web spider seems to be precisely regulated by external events: the beginning of predation is determined by the first thread distortion produced by an insect, a successful location requires sustained mechanical signals, capture movements are contingent on the features of the prey, its vibration, its size, etc. This close connection between environment and behavior may lead to hasty conceptions of the predatory sequence as a S-R chain. Rabaud (1949) wrote that an orb-weaver's behavior, whether during web construction or during prey capture, is nothing more than a succession of reflexes elicited by external stimulation.

The picture that is now emerging is much more complex and much more challenging. To do justice to the intricacy of data, it seems necessary to consider the existence of several kinds of controlling factors, including a control by past experience. The interrelationships between these factors should be studied in order to elucidate the spider functioning as that of an organized and beautifully adapted system.

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FOOTNOTES

1. Condensed version of a paper presented at the 1st Latinamerican Congress of Psychobiology, Sao Paulo, 1973. This article was written while the author held a CNPq fellowship.

ERRORS IN REPORTED AGE: A METHODOLOGICAL PROBLEM IN INDIAN DEVELOPMENTAL STUDIES

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The study attempted to find out the direction and magnitude of errors in the reported age of Indian children. The reported age of fifty boys and fifty girls in each of the rural and urban home-settings and admission-years of 1969, 1973, and 1977 were randomly collected from school admission registers. The actual ages of these children were collected from their horoscopes (traditional palm leaf documents called jataka). The mean of the differences between the reported and real ages (errors) were calculated for each sex, home-setting, and admission-year groups. These mean errors ranged from 125 to 270 days revealing a widespread under reporting of children's recorded age. A three way ANOVA indicated significant effect of admission-year on the absolute error. Further, the interaction of sex and admission year was found to be significant which suggested a decline of error scores in boys and rise of error scores in girls in recent years.

Se estudiaron la magnitud y dirección de errores en la edad reportada de los niños en la Indiae. Se obtuvieron a partir de los registros académicos la edad de 50 niños y 50 niñas de áreas rurales y urbanas en años de admisión a la escuela de 1969, 1973, y 1977. Las edades verdicas de los niños se obtuvieron de sus horóscopos (documentos tradicionales de hoja de palma llamados jataka). Se calcularon las diferencias entre edad en los informes escolares y edad en los horóscopos para cada sexo, lugar y año de admisión. Estas diferencias (errores) tuvieron un rango de 125 a 270 días, revelando así que la tendencia de reportar una edad menor que la verdadera es bastante común. Un análisis de varianza indicó un efecto significativo del año de admisión. Además, la interacción entre sexo y año de admisión también fué significativa, lo cual sugiere que el error en las edades de los niños ha bajado en años recientes mientras que el de las niñas ha subido.

Inaccuracy in age information of Indian subjects was first (and perhaps last) noted by Sinha (1958). In this study, the same subjects reported about their own age on two different occasions and the reliability of these two reports was .90. However, the obtained high reliability in Sinha's study can hardly be considered satisfactory as it relates to factual information. Moreover, reliability of age information does not necessarily guarantee its authenticity (correctness) which is the prime concern of any developmental psychologist.

Age information of educated and school-aged Indian subjects is usually gathered from their school certificates and admission records. In a large majority of these subjects, however, the 'certificate age' is very different from the 'real age', thus introducing error in age information. This problem has consistently been felt but overlooked by the developmental psychologists doing research with Indian samples. The present study, therefore, explores the direction and magnitude of such errors in Indian developmental samples.

METHOD

Subjects

A total of 600 children constituted the samples of the present study. The rural children were drawn randomly from some schools of the State of Orissa. The urban children were selected from the schools of two main cities of the same state. Rural and urban samples were each made up by 50 boys and 50 girls, who were selected from each of the three grades (i.e., eleven, seven, and three representing admission-years of 1969, 1973, and 1977, respectively). Thus the rural sample, like the urban, had a total of 300 children.

Procedure

With the approval of the school principals, the reported date of birth of the children was collected from the school enrollment records. The information about the real date of birth was collected by meeting parents (usually mothers) at their homes and checking into children's horoscope or *jataka*. *Jataka* is a traditional palm leaf birth document which contains the exact date and time of birth. In Orissa, the document is carved on palm leaf by astrologers using a thick metal stylus. It is prepared within a few days following the child's birth and is carefully preserved for such purposes as astrological forecasting of his future and examining compatibility of potential marriage partners, etc. In some cases, it was not possible to check the horoscopes because the parents were apprehensive. The number of such cases were relatively small, and they were replaced by selecting new children from the relevant groups.

RESULTS

The differences (errors) between the real and reported (certificate) ages were calculated in terms of days for each child. These differences were either positive (real < reported) or negative (real > reported). The means of these errors were calculated for subjects belonging to each of the 12 groups and ranged from 125.50 to 270.10 days. All these mean errors were found to be positive revealing a general under reporting of real age for all the children. The average deviation (AD) of the errors for the above groups ranged from 129.32 to 205.86 days suggesting that the error distributions were fairly wide (see Table 1).

Table 1
Mean and Average Deviation of Days of Under Reporting
of Real Age in Three Admission Years

Sample	Admission-Year		
	1969 N = 200	1973 N = 200	1977 N = 200
Boys-Rural	210.82 (161.39) ¹	197.04 (173.80)	125.50 (205.86)
		235.92 (181.51)	217.67 (182.04)
Boys-Urban	261.02 (197.36)	238.30 (193.28)	147.88 (143.06)
Girls-Rural	208.74 (129.32)	162.24 (135.59)	270.10 (199.23)
		234.35 (143.67)	164.52 (140.39)
Girls-Urban	259.96 (149.53)	162.24 (142.82)	188.28 (148.62)

¹ Figures in parentheses show the average deviation of error scores in different samples.

A three way analysis of variance with sex, admission-year, and residential groups was computed on the error scores of the children. The results revealed a significant effect of admission-year on error, $F(2,588) = 3.67, p < .05$. The interaction of sex and grade was also found to have significant effects on these error scores, $F(2,588) = 6.37, p < .01$. The rest of the main and interaction effects were not significant.

DISCUSSION

Looking at the corresponding means it may be noticed that errors in reported age gradually declined over admission-years of 1969, 1973, and 1977. But the significant interaction effect of sex and admission-year seems to suggest quite different trends. Though errors in the reported age of boys declined steadily over admission-years, this trend holds true in girls until the admission-year of 1973 and then rises for both rural and urban samples (see Table 1).

It would seem that raising the age limit for appearing in many competitive examinations for Indian administrative and bank services from 24 to 28 years of age which was introduced in the early 70s, might have contributed to this sudden drop in errors for boys who were admitted in 1977. In girls, however, the sudden rise in error might have been caused by the growing uncertainties about their future career. These uncertainties have perhaps forced on parents the precaution of understating their daughters' ages in order to keep a range of career opportunities open to them, including marriage.

The above discussion only suggests some of the possible reasons for the high level of errors found in reported ages of Indian children. The findings themselves are rather alarming to any psychologist using Indian developmental samples where age reported in school registers is the sole independent variable. The problem of error in reported age may also be quite common in other third-world countries including those in Latin America where children are often born under private care. Birth certificates of these children are usually procured from para-government or private agencies which may not be very authentic.

The substantial errors in the reported ages found in the present study not only call for reconsideration of the findings of developmental studies conducted in India so far (Gupta & Pinto, 1977; Rao, 1976; Saraswathi & Verma, 1976), but also demand greater precautionary measures which must be adopted by future developmental psychologists intending to use subjects from India and other third-world countries. These precautionary measures may not be as essential if some future investigations attempt to work out the correction terms for reported ages of children belonging to different populations in different third-world countries.

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FOOTNOTES

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