

ESTABILIDAD FACTORIAL DE DOS TESTS PSICOLÓGICOS: D.A.T. y KUDER

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RESUMEN. La presente investigación fue diseñada con el propósito de estudiar la estructura interna de dos baterías de tests administradas en dos años consecutivos. Formada, la primera, por el Test de Aptitudes Diferenciales (DAT), el Registro de Preferencias Kuder, Forma Ch. y el Inventario Multifásico de Personalidad de Minnesota (MMPI); y la segunda, por los dos primeros y el Inventario de Personalidad de Maudsley (MPI). El análisis factorial de las matrices de correlaciones utilizando el método de los Ejes Principales dió como resultados 4 y 3 factores respectivamente, que fueron rotados por el método Varimax. Tres de los factores: Habilidad General, Burocrático-Actividades al aire libre, y Sistemático-Estético se observan en los dos muestras estudiadas. El cuarto factor: Tendencia a Personalidad Desajustada es observado en la primera muestra.

ABSTRACT. This study was designed to investigate the internal structure of two test batteries which were administered in two consecutive years. The first battery included the Differential Aptitude Test, the Kuder Preference Record (Form Ch.) and the Minnesota Multiphasic Personality Inventory; the second included the DAT and the Kuder, and the Maudsley Personality Inventory instead of the MMPI. A factor analysis of these data using the method of principal axes resulted in four and three factors, respectively, which were further investigated through the varimax rotation of the principal axes factors.

Three of the factors — general ability, bureaucratic/outdoor activities, and systematic/aesthetic — were observed in the two samples studied. The fourth factor, tendency toward maladjusted personality, was observed in the first sample.

Existen numerosos estudios, como bien lo afirman Kassebaun, Couch y Slater (1959) en los cuales se ha tratado de simplificar el complejo campo de la personalidad por medio del Análisis Factorial, aunque los resultados no siempre han sido satisfactorios. Sin embargo para Eysenck (1953) existen dos factores principales de la personalidad: Neuroticismo-Estabilidad e Introversión-Extraversión.

Kassebaun, Couch y Slater (1959) tratando de clarificar las dimensiones del Inventario Multifásico de Personalidad de Minnesota (MMPI) en forma general y no sólo clínica, incluyeron 19 escalas no-clínicas además de las 9 escalas clínicas y las 4 de validez. El inventario se administró a 160 alumnos de la Universidad de Harvard y se obtuvieron los puntajes en las 32 escalas. Analizando la matriz de correlaciones por el método Centroides

(Thurstone, 1947) se obtuvieron 3 factores que explicaron el 85% de la varianza total.

Cook (1950) utilizando una Batería compuesta por MMPI, Two-Hand Coordination Test, Basic Battery of Written Test, Navy Enlisted Personal Inventory y una clasificación sobre la performance de un grupo de 111 marinos, en total 20 variables, obtiene 6 factores. Anderson, Hugh y Wolking (1966) analizando la matriz de correlaciones de 10 escalas clínicas del MMPI obtienen 4 factores. Tyler (1951) utilizando 15 escalas del MMPI, las 9 clínicas y 6 adicionales, obtiene 5 factores; sin embargo en el primer factor están representadas 10 de las 15 escalas.

Analizando las escalas del MMPI y eliminando los items que pertenecen a más de una escala, Welsh (1952) obtiene 2 factores que explican la mayor parte de la varianza, exceptuando las escalas Mf y Pa. Wheeler, Little y Lehner (1951) con una muestra de 112 estudiantes de la Universidad de California obtiene 3 factores principales, de los cuales en el primero están representadas todas las escalas con excepción de L, Hy, Pa y Ma.

Messich y Jackson (1961) indican la influencia de dos estilos de respuesta en el MMPI, la tendencia a "estar de acuerdo" y a responder en la "forma deseable". Comparan los resultados de 8 estudios factoriales sobre las escalas del MMPI y llegan a la conclusión que todos ellos son muy similares, observándose dos factores principales y dos o tres menores. Los dos factores principales parecen ser: tendencia a estar de acuerdo y tendencia a dar respuesta deseable; el polo negativo de estas dimensiones serían: tendencia al desacuerdo y a lo no deseable. Los autores concluyen que estos dos factores (deseable y estar de acuerdo) juegan un papel importante en las respuestas del MMPI. Finney (1966) analizó 101 escalas del MMPI (45 escalas nuevas basadas en los conceptos de motivación y defensa) obteniendo 3 factores.

Cottle (1950) utilizando una batería formada por el MMPI, Kuder, Strong y Bell Inventories encontró 7 factores. Dos de los factores son comunes a los dos inventarios de personalidad y los otros cinco son comunes a los dos inventarios de intereses.

Droege y Hawk (1970) con una muestra de 841 alumnos de escuelas secundarias a los cuales les administró el General Aptitude Test Battery (GATB) y 14 test no-verbales obtienen a partir de la matriz de correlaciones de las 27 variables, 5 factores. Cochrane, Elkins y Richmond (1969) con una batería de tests de Habilidad General y Aprovechamiento obtienen 3 factores: Verbal, Performance y Cómputo.

PROCEDIMIENTO

El objetivo del presente trabajo fue estudiar la estabilidad factorial del

Test de Aptitudes Diferenciales y del Registro de Preferencias Kuder. Con este fin dichos tests se incluyeron en una batería, compuesta la primera por: 1) el Test de Aptitudes Diferenciales (DAT) de George K. Bennett, Harold G. Seashore y Alexander G. Wesman y se incluyeron los siguientes sub-tests: Razonamiento Verbal, Habilidad Numérica, Razonamiento Abstracto, Relaciones Espaciales, Razonamiento Mecánico, Ortografía y Oraciones; 2) el Registro de Preferencias Kuder, forma Ch.; y 3) el Inventario Multifásico de la Personalidad de Minnesota (MMPI). Estos se administraron a una muestra accidental de alumnos que ingresaron a la Facultad de Filosofía y Humanidades de la Universidad Nacional de Córdoba (Argentina), en el año lectivo 1968. Al finalizar el primer año de estudios se obtuvo para cada alumno un índice de rendimiento académico (promedio de las materias rendidas) eliminándose a los alumnos que no habían rendido al menos una materia. De este modo la muestra quedó constituida por 245 alumnos del sexo femenino de las carreras de Psicología, Letras, Historia y Filosofía.

La segunda batería formada por: 1) los sub-test del DAT mencionados con excepción de Razonamiento Mecánico; 2) el Registro de Preferencias Kuder, forma Ch.; y 3) el Inventario de Personalidad de Maudsley (MPI). Estos fueron administrados a los alumnos que ingresaron a la citada Facultad en el año 1969. Siguiendo el mismo criterio del año anterior la muestra quedó formada por 237 alumnos del sexo femenino de las carreras de Psicología, Pedagogía y Letras.

A partir de los puntajes obtenidos por cada alumna se calcularon las matrices de correlaciones de orden 30×30 para el primer grupo y de orden 19×19 para el segundo. Estas matrices con los valores de las comunalidades estimadas para cada variable i (el cuadrado del coeficiente de correlación múltiple) se analizaron por el método de los Ejes Principales y se obtuvieron los factores cuyos vectores tenían raíces características iguales o mayores que 1.00 (Hannan, 1960). Luego estos factores fueron rotados ortogonalmente por el método Varimax (Kaiser, 1958) a los fines de obtener estructura simple.¹

ANÁLISIS DE LOS DATOS

La Tabla No. 1 presenta las correlaciones para el primer grupo en estudio entre las siguientes variables: A1 índice de Rendimiento Académico, A2 a A8 los sub-test del DAT (Razonamiento Verbal, Habilidad Numérica, Razonamiento Abstracto, Relaciones Espaciales, Razonamiento Mecánico, Ortografía y Oraciones): A9 a A18 las áreas medidas por el Registro de Preferencias Kuder (Aire Libre, Mecánico, Numérico, Científico, Persuasivo, Artístico, Literario, Musical,



Tabla Nº 1

Intercorrelaciones entre el Rendimiento Académico, los sub-tests del D.A.T., las áreas del Registro de Preferencias Kuder y del MMPI para los alumnos del año 1968. Nº = 245.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1																														
2	20																													
3	21	34																												
4	12	51	31																											
5	17	54	38	53																										
6	04	36	27	34	53																									
7	24	37	24	24	25	16																								
8	20	43	27	28	35	19	49																							
9	13	06	02	04	14	03	10	05																						
10	-01	-07	02	01	08	-02	-08	-07	29																					
11	07	-04	10	00	-01	02	-01	06	-24	-13																				
12	00	02	05	08	11	13	-12	10	19	14	28																			
13	02	-01	-06	-02	-08	-01	01	-00	-34	-11	-07	-11																		
14	08	14	03	15	11	11	01	-02	22	14	24	-33	-07																	
15	18	19	05	10	09	09	29	19	07	-25	-12	-07	04	06																
16	-03	00	-08	-05	-04	-01	14	-04	11	00	-17	-19	02	07	17															
17	10	13	16	08	10	01	02	00	05	03	00	23	-02	-23	-13	-23														
18	-10	-08	03	-13	-09	03	-06	-01	-37	-17	32	01	30	-17	-13	-13	-01													
19	-01	04	00	-03	01	04	-07	-04	01	-04	-04	05	-02	-04	03	04	03	-13												
20	-12	02	-11	-06	-13	-11	-04	-05	-03	-05	-08	-06	-06	03	-07	18	-01	-11	28											
21	-06	-04	-11	-06	-13	-05	-07	-14	-02	-03	-16	-08	01	11	-10	07	-05	-08	49	50										
22	-10	10	-16	-08	-09	-02	04	-04	-06	-02	04	-09	07	04	05	13	-11	-02	28	46	48									
23	05	19	08	12	10	15	14	07	-03	-09	-08	-17	04	12	03	10	04	-03	-11	29	14	08								
24	-06	06	-06	-05	-07	05	05	-09	-05	-03	-05	-15	-02	-01	00	07	-13	00	23	41	40	44	16							
25	-07	03	-13	-02	-12	-03	03	-12	-06	00	-15	-15	-03	11	-07	14	-04	-09	29	61	58	52	27	48						
26	-10	01	-07	03	-10	-08	-03	-08	01	07	-04	-10	-02	11	-08	07	-08	-08	27	50	57	59	13	53	73					
27	-05	04	-07	01	-10	-07	03	-10	00	08	-03	-01	04	-01	01	04	04	-08	01	13	25	39	12	31	31	41				
28	-06	-08	-09	-15	-17	-11	-06	-13	02	02	-12	-08	-08	06	-15	10	-09	10	-12	45	14	09	10	16	31	31	-02			
29	-09	-05	-16	-14	-17	-07	-05	-10	04	04	-05	-12	02	17	-09	18	-10	-02	18	38	39	48	08	44	50	65	35	30		
30	00	-10	-03	00	-03	-07	-07	-06	06	06	-01	10	-04	-08	02	-06	05	-04	-04	04	-02	-15	05	-04	-08	-17	00	-06	-30	

Se omitieron los puntos decimales.

Servicio Social y Oficina) y A19 a A30 las escalas del MMPI (Hipocondriasis (Hs), Depresión (D), Histeria (Hy), Desviación Psicopática (Pd), Masculinidad-Feminidad (Mf), Paranoia (Pa), Psicastenia (Pt), Esquizofrenia (Sc), Hipomanía (Ma), Introversión Social (Si), Falso (F), y Mentira (L)).

La Tabla No. 2 presenta las correlaciones para el segundo grupo en las variables: A1 índice de Rendimiento Académico, A2 a A7 los Sub-tests del DAT (Razonamiento Verbal, Habilidad Numérica, Razonamiento Abstracto, Relaciones Espaciales, Ortografía y Oraciones), A8 a A17 las áreas del Registro de Preferencias Kuder (Aire Libre, Mecánico, Numérico, Científico, Persuasivo, Artístico, Literario, Musical, Servicio Social y Oficina) y A18 y A19 las escalas del MPI (Neuroticismos y Extraversión).

TABLA NO. 2

Matriz de intercorrelaciones entre: Índice de Rendimiento Académico, los sub-test del D.A.T., las áreas del Registro de Preferencias Kuder y el MPI para los alumnos del año 1969. N° = 237.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1																			
2	.35																		
3	.23	.35																	
4	.25	.45	.39																
5	.06	.32	.21	.45															
6	.22	.31	.24	.18	.11														
7	.17	.21	.30	.27	.18	.51													
8	.04	.04	-.01	-.06	.09	-.10	-.04												
9	-.13	.05	-.07	-.01	.14	-.01	-.06	.24											
10	-.07	.00	.14	.09	.12	-.04	-.04	-.22	-.07										
11	.06	.09	.01	-.06	.22	-.03	.02	.27	.15	.30									
12	.09	.03	-.04	.08	-.07	.12	.04	.49	-.21	-.23	-.42								
13	-.03	.08	-.12	.10	-.02	-.04	-.10	-.11	.12	-.08	-.35	.09							
14	.04	.10	.06	.14	-.02	.11	.14	.03	-.22	-.08	-.26	-.02	-.04						
15	-.08	-.12	-.03	-.06	-.04	.03	.04	-.01	-.14	-.20	-.29	-.03	.00	.10					
16	.02	-.14	.00	-.13	.03	-.10	-.08	.27	-.07	-.10	.19	-.22	-.34	-.25	-.11				
17	-.08	-.18	.00	-.06	-.12	-.01	-.04	-.59	-.28	.30	-.15	.22	-.08	-.13	-.12	-.32			
18	-.04	.01	.03	.01	.01	-.04	.03	.00	.00	-.17	-.09	.04	.01	.09	.12	-.19	-.01		
19	.04	.07	.07	.12	.02	.01	.10	-.16	.06	.08	.02	.17	-.03	-.05	-.17	-.07	.18	-.27	

Se omitieron los puntos decimales.

En el Análisis Factorial de la primera matriz de correlaciones se obtuvieron cuatro factores con raíces características mayores de 1.00 que explican el 83% de la varianza total; esta matriz factorial se presenta en la Tabla No.

3. La matriz factorial rotada ortogonalmente (Varimax) se presenta en la Tabla No. 4. Los factores I y II han sido reflejados, puesto que todas sus saturaciones factoriales eran negativas. Valores factoriales mayores de .20 se consideraron significativos.

TABLA NO. 3

Matriz Factorial Normalizada (año 1968)

	I ₁	II ₁	III ₁	IV ₁	h ²
1	.170	-.265	.039	.036	.102
2	.120	-.727	-.111	.016	.553
3	.256	-.420	-.116	-.087	.263
4	.193	-.595	-.039	-.088	.400
5	.301	-.664	-.012	-.151	.554
6	.169	-.485	-.108	-.066	.280
7	.109	-.507	-.050	.250	.335
8	.242	-.502	-.143	.079	.338
9	.042	-.186	.580	-.240	.430
10	-.011	.009	.338	-.294	.201
11	.147	.096	-.492	-.193	.311
12	.207	.010	-.120	-.583	.397
13	-.007	.078	-.309	.276	.178
14	-.115	-.228	.397	.228	.275
15	.101	-.263	.058	.307	.177
16	-.192	-.076	.212	.288	.170
17	.140	-.066	-.105	-.350	.157
18	.076	.212	-.532	.133	.351
19	-.339	-.113	-.056	-.248	.192
20	-.681	-.106	-.018	-.055	.478
21	-.684	-.100	-.019	-.136	.497
22	-.667	-.163	-.177	-.017	.503
23	-.184	-.276	-.025	.179	.143
24	-.592	-.158	-.121	.007	.390
25	-.794	-.184	-.031	-.029	.667
26	-.820	-.190	-.065	-.131	.730
27	-.396	-.091	-.054	-.073	.174
28	-.371	.097	.084	.086	.161
29	-.689	-.055	.010	.023	.479
30	.125	.105	.085	-.123	-.049

Las Tablas No. 5 y 6 presentan las matrices factoriales para la segunda serie de datos. Se obtuvieron 3 factores que explican el 75% de la varianza total. El Factor II fue reflejado. Como en el caso anterior se presentan los valores factoriales de por lo menos .20.

TABLA NO. 4

Matriz Factorial Rotada (Varimax)⁽¹⁾ - Año 1968

	$A_1^{(2)}$	$B_1^{(2)}$	C_1	D_1
1 Promedio		.293		
2 Razon. Verbal		.739		
3 Habil. Numérica		.488		
4 Raz. Abstracto		.622		
5 Rel. Espacial		.714		
6 Raz. Mecánico		.524		
7 Ortografía		.521		.237
8 Oraciones		.568		
9 A. Libre			.644	
10 Mecánico			.431	
11 Numérico			-.350	-.429
12 Científico				-.599
13 Persuasivo			-.411	
14 Artístico			.271	.427
15 Literario		.271		.304
16 Musical				.391
17 S. Social				-.368
18 Oficina			-.557	
19 HS	.359			
20 D.	.678			
21 Hy	.693			
22 Pd	.698			
23 Mf	.217	.214		.216
24 Pa	.614			
25 Pt	.802			
26 Sc	.851			
27 Ma	.416			
28 Si	.294			
29 F	.656			
30 L.				

(1) Valores de por lo menos .20

(2) Factores Reflejados

TABLA NO. 5

Matriz Factorial Normalizada (1969)

	I_2	II_2	III_2	h^2
1	-.280	-.288	-.038	.163
2	-.423	-.487	-.065	.421
3	-.373	-.383	-.086	.290
4	-.517	-.409	-.006	.435
5	-.179	-.461	.090	.252
6	-.438	-.265	-.062	.266
7	-.413	-.325	-.039	.278
8	.504	-.501	-.297	.594
9	.233	-.227	-.070	.111
10	-.050	-.063	.605	.373
11	.340	-.473	.454	.545
12	-.477	.396	-.084	.391
13	-.158	.189	-.334	.172
14	-.240	-.010	-.318	.158
15	-.017	.149	-.373	.162
16	.461	-.259	.087	.283
17	-.330	.513	.526	.649
18	-.054	.061	-.238	.062
19	-.191	.010	.254	.101

TABLA NO. 6

Matriz Factorial Rotada Ortogonal (Varimax)⁽¹⁾ (1969)

	A ₂	B ₂ ⁽²⁾	C ₂
1 Rend. Académico		.403	
2 Raz. Verbal		.646	
3 Hab. Numérica		.527	
4 Raz. Abstracto		.654	
5 Rel. Espaciales		.448	
6 Ortografía		.499	
7 Oraciones		.523	
8 Aire Libre	.769		
9 Mecánico	.330		
10 Numérico			.578
11 Científico	.355		.519
12 Persuasivo	-.558		-.276
13 Artístico			-.391
14 Literario			-.345
15 Musical			-.394
16 S. Social	.451		.239
17 Oficina	-.732		.299
18 Neuroticismo			-.249
19 Extraversión	-.219		

(1) Valores de por lo menos .20

(2) Factor Reflejado.

RESULTADOS Y CONCLUSIONES

Un análisis detallado de la Tabla No. 4 permite observar que el factor A₁ tiene pesajes significativos en todas las escalas del MMPI con excepción de la escala L, teniendo las saturaciones máximas en las escalas Pt y Sc, y representa el 37% de la varianza total. Este Factor parece corresponder al Factor I de los estudios de Welsh y de Wheeler y colaboradores; en ambos casos es un factor bipolar, encontrándose en el otro extremo la escala K de validez. En el presente estudio la escala K no fue incluida. También tiene similitud con el Factor A de Cook y Wherry y podría ser denominado *Tendencia a Personalidad Desajustada* como lo llamaron dichos autores y como bien lo expresan, se usa la palabra tendencia ya que se trata de un grupo de sujetos normales.

El Factor B₁ tiene proyecciones significativas en todos los sub-tests del DAT y en el Índice de Rendimiento Académico, observándose las sat-

uraciones más altas en Razonamiento Verbal, Relaciones Espaciales y Razonamiento Abstracto. La Tabla No. 6 muestra que para el segundo grupo en estudio, el Factor B₂ es el mismo, observándose aquí las mayores saturaciones en los sub-tests Razonamiento Verbal y Razonamiento Abstracto. Este factor explica en ambas muestras el 23% y el 28% respectivamente de la varianza total.

El Test de Aptitudes Diferenciales mide ocho habilidades, de las cuales: Razonamiento Verbal, Habilidad Numérica, Relaciones Espaciales y "quizás Razonamiento Abstracto" son aptitudes en el sentido estricto de la palabra (Super y Crites, 1962). Sin embargo teniendo presente que son necesarios razonamientos similares para la solución de problemas matemáticos, verbales y abstractos, es que la mayoría de los tests de inteligencia o habilidad general combinan estos tres tipos de razonamiento. De allí que el presente factor ha sido denominado: *Habilidad General*.

El factor C₁ es bipolar observándose en el extremo positivo el área de Interés al Aire Libre y en el negativo, el interés por Tareas de Oficina; también tienen saturaciones positivas las áreas de intereses Mecánico y Artístico, y negativas los intereses Persuasivo y Numérico. La Tabla No. 6 muestra que para el segundo grupo en estudio, es el factor A₂ el que tiene saturaciones positivas en las áreas de interés Aire Libre, Servicio Social, Científico y Mecánico; y saturaciones negativas en interés por Tareas de Oficina, Persuasivo y la escala Extraversión del MPI. Este factor explica el 12% y 28% respectivamente de la varianza total y parece tener similitud con el Factor C de Cottle en lo referente a preferencia por actividades de rutina. Este tipo de actividades se observa en tareas de oficina que requieren interés por trabajo minuciosos y concreto. Este Factor ha sido denominado: *Burocrático-Actividades al aire libre*.

El Factor D₁ es también bipolar, con saturaciones positivas en las áreas de intereses Artístico, Musical y Literario, y negativas en Científico, Numérico y Servicio Social. Para el segundo grupo es el Factor C₂ el que tiene saturaciones significativas positivas en interés Científico y Numérico, y negativas en Artístico, Musical y Literario. Este factor explica en ambas muestras el 10% y 19% de la varianza total respectivamente. Es similar al factor A de Cottle y se lo ha denominado: *Sistemático-Estético*.

Es de hacer notar que estos últimos factores corresponden a las áreas de intereses medidas por el Registro de Preferencias Kuder. Debe tenerse en cuenta que las escalas del Kuder son ipsativas y no normativas y que estrictamente hablando las correlaciones producto momento de Pearson entre las mismas no serían válidas. Algo similar ocurre con el MMPI, cuyas escalas no son independientes. Respecto al mismo Guilford (1952) y Shure y Rogers (1965) llaman la atención sobre los peligros de analizar factorial-

mente tests con ítems que pertenecen a más de una escala. Sin embargo en el presente trabajo el interés era conocer la estructura y consistencia interna de dos baterías de tests administradas a dos muestras de estudiantes universitarios, es decir estudiar si la estructura factorial obtenida con el D.A.T. y el Registro de Preferencias Kuder se mantienen en sucesivas aplicaciones a muestras distintas.

De los resultados se concluye que hay tres factores que se presentan en ambas muestras y corresponden a los sub-tests del D.A.T. y a las áreas medidas por el Registro de Preferencias Kuder, que son los tests comunes en las dos baterías.

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NOTA

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GOAL CONGRUENCE IN BRAZILIAN ORGANIZATIONS¹

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ABSTRACT. A study of 189 professionals in 13 Brazilian financial institutions sought to apply U.S.-derived organization theory and methodology concerning congruence between individual and organizational goals. A substantial lack of congruence was found, with congruence greater for higher organizational levels. Congruence was positively associated with involvement in work, and negatively associated with propensity to leave the organization. Relationships were stronger for some goals (e.g., self-actualization and status) than others (e.g., competent supervision and working on relevant problems). Results of the study indicate that questionnaire methodology is suitable for studying professionals in Brazilian organizations, and that goal congruence theory holds in Brazil as it does in the U.S.

RESUMEN. Se realizó un estudio en 189 profesionales en 13 instituciones financieras Brasileñas con el fin de aplicar la teoría de organización y la metodología referente a la congruencia entre objetivos individuales y los de la organización, con conceptos derivados del medio de Estados Unidos. Se reveló una falta substancial de congruencia, siendo ésta mayor en los niveles más altos de la organización. Existía una relación positiva entre la congruencia y la dedicación al trabajo y una correlación negativa entre ésta y la disposición a abandonar la organización. Las correlaciones fueron más altas para ciertos objetivos (tales como autorealización y status) que para otros (como por ejemplo, supervisión competente y trabajo sobre problemas relevantes). Los resultados del estudio indican que la metodología de cuestionarios se adapta bien para el estudio de las organizaciones Brasileñas constituidas por profesionales y que la teoría de congruencia de objetivos se aplica tanto a Brasil como a los Estados Unidos.

Today more people in the Western Hemisphere are spending more time in organizations than ever before. As societies develop, organizations tend to develop as well. For better or for worse, organizations are both a consequence and a cause of socioeconomic development.

Although social scientists have tended to focus on other units of analysis — such as individuals, groups, and societies — a field of research and theory on organizations has been emerging as well.

“Organization theory” is the study of the structure and functioning of organizations and the behavior of groups and individuals within them. It is an emerging interdisciplinary quasi-independent science, drawing primarily on the disciplines of sociology and psychology, but also on economics and, to a lesser extent, on production engineering. (Pugh, 1966, p. 235)

Among the topics considered in organization theory are power and authority, the taking of organizational roles, communications, motivation, decision-making, leadership, and organizational change.

To date, however, most of the work in the emerging field of organization theory has been limited in the Western Hemisphere to the United States and Canada. We know very little about the extent to which we can generalize the theoretical concepts, empirical findings, and research methods of contemporary organization theory to most of the countries of the Western Hemisphere.

In this paper we shall provide information about some organizations in one of these countries: Brazil. We shall report findings in an empirical study of one of the most important issues in organization theory — that of goal congruence, or the match between individual and organizational goals. To what extent do formal organizations provide for the satisfaction of individual goals? What is the relationship between goal congruence and such factors as hierarchical level in the organization, involvement in work, or desire to leave the organization?

Some students of organization have argued that the central problem in managing an organization is to integrate individual and organizational goals. Others have argued that individual and organizational goals are inevitably at odds with one another. Argyris (1957, p. 233) states this strongly:

There is a lack of congruence between the needs of healthy individuals and the demands of formal organizations. If one uses the traditional formal principles of organization (i.e., traditional chain of command, task specialization) to create a social organization, and if one uses as an input, agents who tend toward a mature state of psychological development (i.e., they are predisposed toward relative independence, activeness, use of important abilities), one creates a disturbance because the needs listed above of healthy individuals are not congruent with the requirements of formal organizations, which tend to require the agents to work in situations where they are dependent, passive, and use few and unimportant abilities.

A study by Farris (1963) of 552 professionals in eleven organizations in the United States strongly supported Argyris' contention. About two-thirds of the participants in the Farris study reported a lack of congruence between their goals and the provision for satisfying them in their organizations. Moreover, lower congruence occurred at lower levels in the organizations, and was associated with lower involvement in the job and lower professional output. Other studies (see Argyris, 1964) have suggested that similar phenomena also occur for non-professionals in the United States.

Are such findings limited to the context of cultural values and organizations of the United States, or do they hold in Brazil as well? We investigated this question using information provided by 189 employees from 13 Brazilian financial institutions. All but one of these organizations were in the public sector. Participants in the study were professionals involved in evaluating and approving loan applications from small and medium size businesses. Seventy-five per cent of the participants were between 20 and 35 years of age, and over three-fourths of them had completed college, usually obtaining degrees in engineering, economics, or law.

PROCEDURE

The participants completed paper-and-pencil questionnaires asking about several characteristics of their organizations. As part of the larger questionnaire, we asked two questions to measure goal congruence:

- 19) Listed below are several types of opportunities that a job could offer. To what extent does your present job really offer an opportunity to realize each one of these possibilities?
- 33) If you had to seek a job, how much importance would you give to the factors listed below?

After each question, 21 possible goals for an individual member of an organization were listed. Respondents rated the provision or importance of each factor on a scale ranging from "(1) - very little" to "(5) - very much."

Inspection of intercorrelations among the 21 factors identified ten clusters. As a result, the items were combined into the ten indices shown in Table 1.²

FINDINGS

Extent of Goal Congruence. Table 1 shows the extent of goal congruence for each of the ten types of goals. The bottom line of the table shows that across all 21 goals, the importance was greater than the provision in 86 per cent of the cases. That is, on the whole, 86 per cent of the participants in the study reported a lack of goal congruence. These findings strongly support Argyris' proposition.

Goal congruence did vary considerably, however, according to the particular goal in question. Congruence was greatest for social prestige and job security (relatively unimportant goals) and least for the goals of status, self-actualization, and competent supervision.

Goal Congruence and Level. A pervasive characteristic of most formal organizations is hierarchy. Some members fill offices carrying higher discretionary power, responsibility, and status than others. The participants

TABLE 1
Extent of Goal Congruence

<u>Goal</u>	<u>Importance Exceeds Provision</u>	<u>Importance Equals Provision</u>	<u>Importance Is less than Provision</u>
Status	85%	6%	8%
Salary			
Advancement			
Reputation			
Self-actualization	84	8	6
Challenging problems			
Freedom			
Important problems for organization			
Goals well defined			
Be appreciated for worth			
Hard-working team			
Responsibility			
Competent supervision	81	8	9
Use present abilities	61	29	9
Develop new abilities	61	27	10
Relevant problems	58	20	21
For country			
For state			
Working conditions	50	38	11
Common values	48	39	12
Job security	40	38	21
Social prestige	38	25	35
High-prestige institution			
Know important people			
Acquire social prestige			
Total (summing all items for each respondent)	86	1	11

Note: Approximate N equals 189; percentages do not total 100% due to missing data.

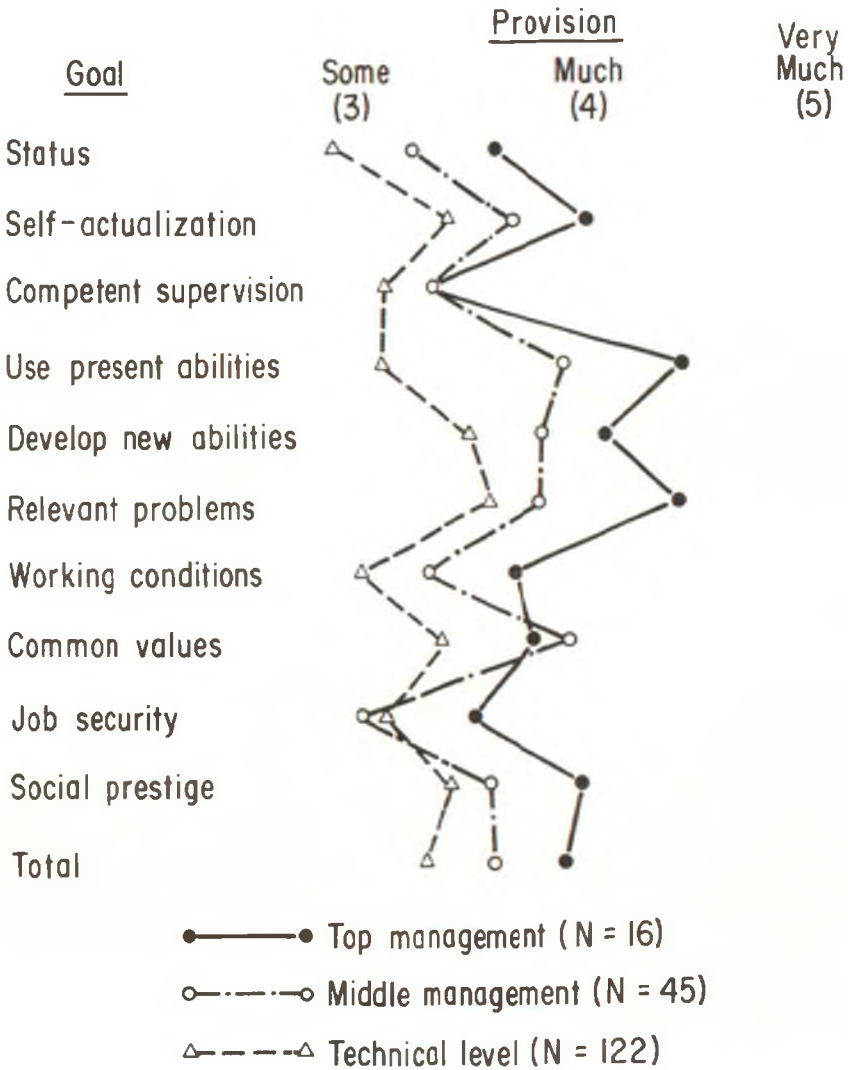


Fig. 1. Provision by level and goal

in this study included 16 top managers, 45 middle managers, and 122 first-level technical men. We compared the participants from each level; first, on the importance they attached to each goal; and second, on the extent to which their jobs provided an opportunity to satisfy each goal.

No differences were found in the importance people at each level attached to each job goal. The importance attached by individuals to each of the different goals was quite high regardless of level in the hierarchy.

However, differences were found in the provision of job goals for the different organizational levels. (See Figure 1.) Top and middle managers consistently reported greater provisions for satisfying goals important to them in a job, and differences were especially pronounced in the areas of using present abilities, self-actualization, and learning new abilities. Thus, goal congruence is higher for people at higher levels in these Brazilian organizations, just as it tends to be for members of organizations in the United States.

Congruence and Involvement. So far we have found a substantial lack of goal congruence among members of these Brazilian organizations, especially members at non-managerial levels. Is this lack of congruence a bad situation for these organizations (as Argyris says), or is it good (perhaps because it forces people to continually strive harder to satisfy their job goals)?

Previous work done in the United States (Farris, 1963; Argyris, 1964) suggests that people who are less able to satisfy important goals on the job are also less involved in their work itself. Work is less of a central life interest for them. We asked participants in our study to rate their involvement in their work on a 5-point scale to the following question:

There are people who are totally involved in their work, thinking about it night and day. For others, their work is only one among several interests. To what extent are you involved in your work?

Relationships between goal congruence and involvement are shown in Table 2. (For each job goal area, we calculated a goal congruence index by taking the difference between the importance and provision for that goal area.) The findings indicate fairly low, but statistically significant, relationships between involvement and goal congruence in several areas. Strongest relationships occur for self-actualization and status. People who say they are able to satisfy important goals on the job also tend to say that their work is a more important part of their lives.

Congruence and Desire to Leave the Organization. In a recent study of turnover of professionals, Farris (1971) predicted turnover on the basis of goal congruence. He found that those who actually left their organizations were apt to report, while they were still employed, that leaving would h

TABLE 2

Relationships Between Goal Congruence and Involvement
in Work and Desire to Leave the Organization

<u>Goal</u>	<u>Involvement</u>	<u>Desire to Leave Organization</u>
Status	.25***	-.21**
Self-actualization	.34***	-.23***
Competent supervision	.05	-.05
Use present abilities	.19**	-.20**
Develop new abilities	.16**	-.14*
Relevant problems	.04	-.05
Working conditions	.13*	.05
Common values	.19**	-.13*
Job security	.09*	-.01
Social prestige	.04	-.14*
Total Congruence	.29***	-.19**

* $p < .10$ ** $p < .01$ *** $p < .001$

N = 189, approximately

their careers, and that their current jobs provided less opportunities for satisfying important job goals.

Would these Brazilians also report a greater desire to leave their organizations when they experienced lower goal congruence? We asked about desire to leave with the following question:

In the next three years, which of the following possibilities will be most beneficial to your career?

Seven possibilities were listed, two implying a desire to stay with the current organization and five implying turnover. Relationships between goal congruence and a stay-turnover scoring of this desire-to-leave question are shown in Table 2. The negative relationships indicate that a greater de-

sire to leave tends to be associated with lower goal congruence. Relationships are strongest for self-actualization, status, and chance to use important abilities on the job.

DISCUSSION AND CONCLUSIONS

To summarize the main findings of this study of goal congruence, we found in these Brazilian organizations:

1. A substantial lack of goal congruence.
2. More congruence at higher organizational levels.
3. A positive association between congruence and involvement in work.
4. A negative association between congruence and a feeling that leaving the organization would help one's career.
5. Stronger relationships for some goals (e.g., self-actualization and status) than others (e.g., competent supervision and relevant problems).

Let us discuss briefly some implications of these findings for Brazilian organizations and then for organization theory in general.

The young, well-educated professionals who participated in this study are an important asset to their organizations. Moreover, the supply of such professionals is greatly exceeded by the demand for them in much of the Western Hemisphere. Yet, the organizations in which they work are not fully satisfying the members' work goals, and this lack of goal congruence is associated with lower involvement in work and less propensity to stay with the organization. It is a critical challenge to these organizations to find ways of motivating and satisfying their professional staffs.

Two findings in this study of goal congruence suggest directions for proceeding to meet the challenge. First, initial emphasis should be placed on satisfying self-actualization and status goals, since they related most strongly to involvement and desire to leave. Competent supervision and working on problems relevant to the state and country would be less important initially. Second, the fact that people at higher levels in the organizations reported higher goal congruence suggests that placing more of the professionals in managerial-type roles may also be helpful. This idea is not so fanciful as it may sound at first. Recent work by organizational psychologists suggests some ways in which this can be achieved. (See especially Myers' (1970) *Every Employee a Manager* and Likert's (1967) *The Human Organization*.) In fact, many of the suggestions of these two authors would be apt to increase the self-actualization and status congruence of organizational members.

The findings of this study suggest that the concept of goal congruence is an important one to use in studying Brazilian organizations. Moreover,

the questionnaire methodology we employed appears to be a useful tool in doing research in Brazilian organizations. Finally, the fact that goal congruence was found to be related to level, involvement, and desire to leave the organization in a similar manner in Brazil and the United States, suggests that this aspect of organization theory has wide applicability within the Western Hemisphere. Some of our other research in Brazil (Farris and Butterfield, 1971) suggests that in other areas, specifically in leadership theory, some findings are different in Brazil and the U.S.

We hope that our study of goal congruence in Brazilian organizations has illustrated ways in which psychologists can advance organization theory and management practice. Organization theory has much to contribute as organizations become an increasing fact of life in the Western Hemisphere.

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FOOTNOTES

1. This report is part of a series of studies of Brazilian financial institutions. This initial research has been supported by grants from the Ford Foundation. A series of working papers is available summarizing results of analyses to date. Recently, the authors (Butterfield and Farris, 1971) have proposed further study of relationships between organizations and economic development. The authors are grateful to Mario Gnecco-Lombardi for his assistance in this research on goal congruence.
2. Details of several of these and subsequent analyses appear in M. Gnecco-Lombardi, *Congruence of Job Factors in Brazilian Development Banks*, unpublished S. M. Thesis, M.I.T., 1971, and G. F. Farris, G. W. Chinn, H. Friedman, L. Wakeman, and J. D. Nyhart, *Questionnaire Study of Four Regional Development Banks*. MIT Development Banking Project, Working Paper Series No. 11, December, 1967.