COGNITIVE STYLE:
KONSEP DAN REVIU LITERATUR AKUNTANSI

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Pengantar

Puji syukur penulis panjatkan dan mampu terlantun melalui kata "Alhamdulillah" tercurah kepada Allah SWT karena berkat rahmat-NYA buku dengan Judul "***Cognitive Style: Konsep dan Reviu Literatur Akuntansi***" dapat terselesaikan dengan baik. Buku ini mencoba mengeksplor konsep gaya kognitif dari persepektif teoritis maupun empiris dan juga menyajikan hasil-hasil penelitian sebelumnya yang telah penulis lakukan untuk konteks Indonesia.

Buku ini diharapkan mampu memberikan kontribusi bagi dunia pendidikan khususnya bagi para akademisi di bidang akuntansi khususnya akuntansi keperilakuan. Menurut Belkaoui (1989), kebanyakan pendekatan tradisional untuk membangun sebuah teori akuntansi telah gagal untuk memperhitungkan perilaku pengguna akuntansi, para perencana dan asumsi perilaku pada umumnya. Akuntansi keperilakuan menekankan relevansi informasi akuntansi untuk pengambilan keputusan sebagaimana perilaku individu dan kelompok yang disebabkan oleh komunikasi terhadap informasi ini.

Perilaku individu dan kelompok dalam memproses informasi dikenal dengan gaya kognitif (*cognitive style*). Gaya kognitif seseorang mengacu pada cara khusus seseorang dalam memperoleh, menyimpan, memperoleh kembali dan mentransformasi informasi (Ho dan Rodgers 1993; Kogan 1973). Dengan demikian informasi yang serupa dapat direspon secara berbeda oleh individu dan pada akhirnya akan menghasilkan pengambilan keputusan yang tidak sama. Selain menyajikan konsep, buku ini juga menyajikan reviu literatur atas hasil-hasil penelitian sebelumnya. Hal ini penting untuk menambah wawasan pembaca bahwa gaya kognitif secara empiris menunjukkan peran yang signifikan dalam pengambilan keputusan di bidang akuntansi. Hasil penelitian sebelumnya menunjukkan bahwa gaya kognitif mempengaruhi keputusan dan kemampuan auditor dalam mendeteksi *fraud* (Bernardi 2003; Mills 1996; Bernardi 1994; Ho dan Rogers 1993). Gaya kognitif mempengaruhi keputusan-keputusan akuntansi (Lusk 1973; Benbasat dan Dexter 1979; Chenhall 2004; Emsley dan Chung 2010; Jones dan Wright 2010, 2012). Gaya kognitif mempengaruhi kinerja akuntan dan auditor (Lusk 1979; Benbasat dan Dexter 1982; Vaassen *et al.,* 1993; Cheng *et al.,* 2003; Fuller dan Kaplan 2004, Bryant *et al.,* 2009). Secara khusus penulis menyajikan hasil-hasil penelitian di Indonesia yang telah dilakukan oleh tim penulis.

Buku yang membahas faktor psikologis gaya kognitif ini diharapkan dapat menjadi salah satu preferensi bagi para *decision maker* untuk meningkatkan kepekaannya dalam pengambilan keputusan. "Tak ada gading yang tak retak" bahan ajar ini jauh dari kata sempurna. Terima kasih untuk beberapa pihak yang telah membantu terselesainya bahan ajar ini dan masukan serta saran penulis harapkan demi hasil karya terbaik anak bangsa.

Palembang, November 2020

Tim Penyusun

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BAB I
Konsep Gaya Kognitif

1.1. Pengertian dan Karakteristik Gaya Kognitif

Gaya kognitif merupakan salah satu aspek akuntansi dalam penelitian akuntansi keperilakuan. Aspek-aspek tersebut dapat ditinjau dari berbagai sudut pandang yaitu antara lain untuk menilai reaksi individu terhadap informasi laporan keuangan. Informasi dari proses akuntansi berupa laporan keuangan akan menimbulkan reaksi psikologis dari pihak-pihak yang berkepentingan terhadap informasi laporan keuangan. Dalam ranah akuntansi keperilakuan adalah pihak-pihak yang terkait dalam proses pengambilan keputusan akuntansi antara lain auditor baik auditor internal maupun auditor eksternal yang merupakan salah satu pihak yang berkepentingan terhadap informasi laporan keuangan untuk menilai apakah laporan keuangan telah disajikan dengan wajar. Selain itu dapat juga meneliti pada akuntan, investor, kreditor, manajemen, mahasiswa akuntansi dan lain-lain. Penelitian pada subjek-subjek tersebut telah banyak dilakukan baik didalam maupun diluar negeri.

Pengertian tentang perbedaan individu dalam pemrosesan informasi kembali ke zaman klasik dan ide mengenai perbedaan kualitatif pada pemikiran, misalnya lisan dibandingkan visual telah dibahas oleh Fechner dan Galton pada abad kesembilan belas (Sadler dan Smith, 1998). Perbedaan cara pemrosesan informasi tersebut dikenal dengan istilah gaya kognitif. Banyak pengertian dan definisi yang disampaikan oleh para peneliti di bidang ini. Ho dan Rogers (1993) menjelaskan bahwa gaya kognitif seseorang mengacu pada cara khusus seseorang

dalam memperoleh, menyimpan, memperoleh kembali dan mentransformasi informasi. Gaya kognitif didefinisikan sebagai sebuah pendekatan yang lebih disukai dan kebiasaan individu untuk mengatur dan mewakili informasi (Chen dan Macredie 2002).

Gaya kognitif merupakan model karakteristik mengamati, mengingat dan pemecahan masalah, mencerminkan keteraturan pemrosesan informasi yang berkembang dengan cara yang menyenangkan pada kecenderungan kepribadian yang mendasarinya (Sadler dan Smith, 1998). Menurut Witkin*et al.*(1977), gaya kognitif merupakan perbedaan individu dalam bagaimana melihat, berpikir, memecahkan masalah, belajar, dan berhubungan satu sama lain. Hal ini menjelaskan bagaimana cara seseorang memproses dan mengatur informasi sehingga sampai pada penilaian atau kesimpulan berdasarkan pengamatan mereka terhadap situasi.

Gaya kognitif mencerminkan '*bagaimana*', bukan '*seberapa baik*', kita mempersepsikan dan menilai informasi. Hal ini menekankan pada sifat individu dari pada kemampuan kognitif, berfokus pada 'tipe di sukai' sebagai lawan dari 'makin banyak semakin baik' pada ukuran psikometri seperti IQ (Hough dan Ogilvie, 2005). Witkin *et al*. (1977) berpendapat bahwa tipe merupakan suatu dimensi yang luas mengenai perbedaan individu yang membentang diantara aktivitas persepsi dan intelektual, dan menyarankan empat karakteristik gaya kognitif: (i) lebih fokus pada bentuk dari pada isi pembelajaran: (ii) melingkupi dimensi yang dapat dinilai secara non-verbal (yaitu perceptual melalui tes seperti

uji Witkin atau uji angka tertanam/*the embedded figures test*); (iii) stabil sepanjang waktu; bipolar.

Riding dan Cheema (1991) menggambarkan gaya kognitif sebagai: (i) mencerminkan kepribadian mendasar; (ii) cara otomatis dalam menanggapi informasi dan situasi dan; (iii) stabil dan *pervasive*. Gaya kognitif model Kirton's dibangun pada asumsi bahwa gaya merupakan ortogonal (yaitu konseptual independen) terhadap: (i) kapasitas kognitif; (ii) keberhasilan; (iii) teknik kognitif; (iv) mengatasi perilaku.

Banyak perbedaan kerangka pemikiran untuk menggambarkan gaya kognitif yang mengacu pada dimensi kognitif para peneliti itu sendiri, sering tanpa memperhatikan bidang lain yang serupa. Sadler-Smith (1998) merangkum beberapa kerangka pemikiran gaya kognitif tersebut. Menurut Curry (1983) mereview lebih dari dua puluh model gaya kognitif/*learning*, Sementara Riding dan Cheema (1991) mengidentifikasi lebih tiga puluh deskripsi yang berbeda. Hayes dan Allinson (1994) mengidentifikasi dua puluh dua dimensi gaya kognitif dan berkomentar bahwa beragam dimensi gaya kognitif dan perkembangan studi empiris menggunakan ukuran yang berbeda dari gaya kognitif menghasilkan bidang ilmu yang kompleks dan membingungkan.

Beberapa karakteristik gaya kognitif yang dirangkum oleh Sadler-Smith (1998) adalah simple versus complex; (2) adaptor versus innovator; (3) *field dependent* versus *field independent*; (4) *analytic* versus *intuitive*; (5) sensor versus intuitive; (6) *individualist* versus *collectivist.* Berikut ini penjelasan dari beberapa karakteristik gaya kognitif.

1.2. Gaya Kognitif : *Sensor & Intuitive*

Satu gaya kognitif mungkin tidak cukup untuk mencapai kinerja keputusan yang tinggi ketika seseorang dihadapkan pada tugas yang lebih kompleks. Dalam hal tipe pemrosesan informasi yang kompleks, kedua gaya kognitif diperlukannya yaitu intuitive dan sensors. Gaya sensors lebih cenderung pada pengidentifikasian dan pengklasifikasian detail-detail yang spesifik dan mengaplikasikannya dalam pola terstruktur (kebiasaan) untuk melaksanakan tugas. Sebaliknya, gaya intuitive lebih cocok menerima informasi secara global, mengidenfikasi koneksi dan hubungan, konseptualisasi sifat dan permasalahan, dan memprediksi berbagai solusi. Ketika tugas diperlukan oleh kedua gaya pemrosesan, gaya intuitive kurang cocok dengan analisis yang detail untuk mencapai solusi optimal, pilihan untuk menentukan solusi lebih tinggi, sementara sensors mungkin lebih menggunakan analisis detail untuk sebuah pemahaman yang kurang sesuai atau tugas yang spesifik.

Riset-riset di bidang psikologi dan manajemen telah menguji hubungan antara model persepsi seseorang (*sensing atau intuitive*) dan cara seseorang memproses informasi. Berdasarkan pada review studi-studi sebelumnya, Gardner dan Martinko (1996:63) menyatakan bahwa terdapat cukup bukti bahwa manajer dengan preferensi sensor cenderung untuk menerima dan memproses secara sistematis semua tanda-tanda dan informasi, sedangkan manajer yang intuitive cenderung memproses informasi yang abstrak dan perceptual. Hal ini menunjukkan bahwa seseorang akan menerima informasi yang disajikan kepada mereka dalam

laporan kinerja dengan cara yang berbeda dan hasilnya juga akan membuat pengambilan keputusan yang berbeda pula.

Beberapa riset akuntansi menguji perbedaan mengenai persepsi informasi dalam hal pengambilan keputusan oleh tipe sensors dan intuitive. Riset-riset sebelumnya mengenai hal ini menghasilkan perpaduan tersebut (Casey 1980; Rodgers dan Housel 1987). Dalam memprediksi kebangkrutan, Casey (1980) menemukan bahwa gaya intuitive lebih tinggi kinerjanya dibandingkan sensors, dan dampaknya adalah manajer yang intuitive lebih mampu mempersepsikan dan memahami implikasi terhadap level, trend dan *trade-off* berbagai rasio keuangan yang disajikan. Sebaliknya, Rodgers dan Housel (1987) dan Rodgers (1992) gagal menemukan sebuah perbedaan yang serupa dan tugas pengambilan keputusan yang diberikan. Studi Ho dan Rodgers (1993) berusaha untuk merekonsiliasi perbedaan penemuan tentang informasi yang disajikan bagi seseorang. Baik Rodgers dan Housel (1987) maupun Rodgers (1992) tidak memberikan seseorang informasi mengenai ekonomi dan manajemen. Ho dan Rodgers (1993) menyatakan bahwa dengan tidak memberikan tambahan informasi tersebut, penulis-penulis tersebut mengabaikan manfaat dari gaya intuitive dalam penggunaan informasi untuk menghasilkan pola kinerja. Dengan demikian Ho dan Rodgers (1993) menduga bahwa informasi yang diberikan kepada seseorang harus disertasi dengan sensitivitas terhadap karakteristik pengguna informasi.

Chenhall dan Morris (1991) memberikan dukungan lebih lanjut tentang pentingnya perbedaan persepsi informasi diantara individu-individu dengan gaya cognitive yang berbeda. Dalam konteks alokasi sumberdaya, penulis mendapat

dukungan untuk proposisi bahwa gaya intuitive lebih fokus pada konsekuensi yang luas dan mempertimbangkan informasi secara holistik. Selanjutnya gaya tersebut lebih menyukai untuk mengidentifikasi biaya kesempatan yang implisit dihubungkan dengan berbagai tipe pengeluaran. Penelitian Cheng *et al* (2003) menunjukkan bahwa cara seseorang dalam menyikapi informasi berupa laporan akuntansi berbeda tergantung pada gaya kognitif masing-masing. Hal tersebut juga menyarankan bahwa seorang desainer laporan akuntansi perlu untuk sensitive mengenai bagaimana informasi yang diberikan akan diinterpretasikan dan diproses oleh seseorang yang berbeda. Penelitian Fuller dan Kaplan (2004) menguji *cognitive misfit* pada kinerja auditor, hasilnya menunjukkan bahwa terdapat ketidakcocokan antara gaya kognitif seseorang dengan karakteristik penugasan auditor.

Hasil studi Ho dan Rodgers (1993), menunjukkan bahwa pemberi informasi perlu sensitive dengan karakteristik cognitive seseorang, tetapi juga mengimplikasikan bahwa beberapa individu mungkin lebih cocok untuk melengkapi aspek-aspek khusus dari tugas berdasarkan disposisi kognitif dalam memproses informasi yang relevan. Dibandingkan dengan studi Casey (1980) dan Rodgers dan Housel's (1987), hal itu menunjukkan bahwa seseorang yang intuitive sesuai dengan informasi yang bertipe global tidak hanya menghasilkan kinerja yang superior, tetapi juga kinerja yang lebih tinggi dibandingkan gaya sensors individu. Hal ini menyarankan bahwa pemberian tugas yang digunakan dalam penelitian tersebut meminta pemrosesan informasi yang lebih dekat dengan gaya kognitif

intuitive. Kesimpulan yang sama dapat diambil pada penugasan yang digunakan oleh Chenhall dan Morris (1991).

1.3. Gaya Kognitif : Field Independent & Field Dependent

Sadler-Smith (1998) menyatakan bahwa studi sistematis pertama mengenai perbedaan individu dalam pendekatan pengolahan informasi dilakukan oleh Bruner *et al.*(1956). Penelitian tersebut mengidentifikasi dua pendekatan yang berbeda untuk memecahkan masalah yang mereka beri label '*focus*' dan'*scanning*'. Bruner dan Witkin tersebut berfokus pada organisasi dan struktur informasi dalam proses berpikir, sementara yang lain telah berkonsentrasi pada modus representasi informasi dalam proses berpikir. Secara garis besar, studi tersebut menyarankan dua model representasi alternatif informasi yaitu'visualisasi' (bentuk gambar) atau 'verbalisasi' (semantik/lisan). Witkin *et al.* (1977) menggunakan dua gaya persepsi yang berbeda yaitu *field dependence* yang terdiri dari *field independent* (FI) dan *field dependent* (FD).

Individu dengan gaya *field independent* cenderung analitis, mampu menentukan struktur mereka sendiri terhadap informasi dan memiliki orientasi impersonal. Sementara individu dengan gaya *field dependent* memahami secara global, mematuhi struktur sebagaimana yang diberikan dan memiliki orientasi sosial. Individu yang *field dependent* memiliki persepsi dan pemrosesan informasi yang dipengaruhi oleh konteks di mana mereka beroperasi. Hal ini adalah sejauh mana organisasi mendominasi persepsi dari setiap bagian bagiannya. *Field*

dependents mengandalkan pada pandangan eksternal sementara *field independent* mengandalkan pandangan internal.

Hayes dan Allinson (1994) mengemukakan sejumlah implikasi dari dimensi *field dependent-independent* ini, yaitu: (i) *field dependents* lebih mampu mengungkapkan diri dan sensitif pada sosial; (ii) *field independents* unggul dalam prestasi akademik meskipun ini menimbulkan masalah tentang hubungan antara konstruk *field dependent-independent* dengan kemampuan, dengan beberapa perdebatan bahwa itu adalah ukuran kemampuan dibandingkan ukuran gaya; (iii) *field independent* memiliki kemampuan berlatih yang lebih tinggi. Dari perspektif pengembangan sumber daya manusia (SDM) sejumlah studi telah menyarankan bahwa pembelajar dengan *field dependent* cenderung kurang sukses dalam lingkungan belajar berbasis computer dan self-instruksional (Thompson dan Knox, 1987).

Tabel 1 menunjukkan perbedaan gaya kognitif *field dependent*-independent yang dikembangkan oleh Yu Cao (2006).

Tabel 1.1

Karakteristik *Field Independent - Field Dependent*

No.	*Field Independent (FI)*	*Field Dependent (FD)*
1.	Individu menggunakan pengorganisasian secara tidak terstruktur.	Individu menggunakan pengorganisasian secara terstruktur pada bidang tertentu.
2.	Individu memanfaatan secara maksimal proses meditational seperti menganalisis dan struktur	Individu kurang efektif dalam memanfaatkan proses mediational.
3.	Individu aktif menggunakan pengujian hipotesis dalam pembelajaran.	Individu pasif dan berperan sebagai penonton dalam proses belajar.
4.	Individu kurang didominasi oleh isyarat paling menonjol dalam pembelajaran.	Individu lebih didominasi oleh isyarat penting dalam belajar.
5.	Individu menggunakan struktur dan mereorganisasi bahan untuk penyimpanan dan pengambilan informasi yang lebih efektif.	Individu menggunakan materi organisasi yang tersedia dalam proses kognitif.
6.	Individu mendefinisikan tujuan dan bantuan secara internal.	Individu mendefinisikan tujuan dan bantuan secara eksternal.
7.	Individu cenderung mempelajari prinsip2 umum dan mendapatkannya dengan cara yang lebih mudah.	Individu cenderung mempelajari informasi secara detail dan memperoleh dengan cara mudah.
8.	Individu memiliki motivasi instrinsik dan berorientasi pada tugas.	Individu memiliki motivasi ekstrinsik.
9.	Individu belajar lebih baik pada tugas pembelajaran yang berpusat pada peserta didik.	Individu belajar lebih baik dengan informasi yang relevan secara sosial.

Sumber: Yu Cao (2006)

Gaya kognitif seseorang mengacu pada cara khusus seseorang dalam memperoleh, menyimpan, memperoleh kembali dan mentransformasi informasi (Ho dan Rodgers 1993; Kogan 1973). Individu *field independent* yang cenderung analitis, mampu menentukan struktur mereka sendiri terhadap informasi dan memiliki orientasi impersonal. Berbeda dengan individu

dengan gaya *field dependent* memahami secara global, mematuhi struktur sebagaimana yang diberikan dan memiliki orientasi sosial. Seseorang akan dikatakan independen jika mampu mengidentifikasi figur yang tertanam lebih banyak. Oleh karena auditor harus mengevaluasi informasi yang kompleks dan mengidentifikasi masalah tertentu dalam konteks lingkungan secara keseluruhan, *field independent* merupakan karakteristik penting dalam audit. Seseorang yang independen lebih efisien dalam membangun kesimpulandan lebih baik dalam pemecahan masalah (Cochran dan Davis 1987; Bennink dan Spoelstra 1979) dan pengambilan keputusan (Benbasat dan Dexter1982).

Hasil penelitian sebelumnya menunjukkan bahwa gaya kognitif mempengaruhi keputusan dan kemampuan auditor dalam mendeteksi *fraud* (Bernardi 2003; Mills 1996; Bernardi 1994; Ho dan Rogers 1993). Gaya kognitif mempengaruhi keputusan-keputusan akuntansi (Lusk 1973; Benbasat dan Dexter 1979; Chenhall 2004; Emsley dan Chung 2010; Jones dan Wright 2010, 2012). Gaya kognitif mempengaruhi kinerja akuntan dan auditor (Lusk 1979; Benbasat dan Dexter 1982; Vaassen *et al.,* 1993; Cheng *et al.,* 2003; Fuller dan Kaplan 2004, Bryant *et al.,* 2009).

Penelitian-penelitian tersebut cenderung berada pada ranah akuntansi keperilakuan. Menurut Belkaoui (1989), kebanyakan pendekatan tradisional untuk membangun sebuah teori akuntansi telah gagal untuk memperhitungkan perilaku pengguna akuntansi, para perencana dan asumsi perilaku pada umumnya. Akuntansi keperilakuan menekankan relevansi informasi akuntansi untuk pengambilan keputusan sebagaimana perilaku individu dan kelompok yang disebabkan oleh komunikasi terhadap informasi ini.

1.4. Orientasi Kognitif: Individual vs Kolektivist

Hofstede(1980) dalam artikelnya menyatakan bahwa orientasi kognitif manusia dapat dikategorikan menjadi individualis dan kolektivis. Individualis / kolektivis

menjelaskan perbedaan budaya dalam perilaku sosial. Masyarakat individualis menekankan bahwa mereka merasa memiliki otonomi, independensi emosional, inisiatif individual, hak atas privasi, pencarian kepuasan, keamanan finansial, kebutuhan pertemanan khusus, dan universalisme. Sebaliknya, masyarakat kolektivis menekankan identitas kolektif, ketergantungan emosional, solidaritas kelompok, *sharing,* hak dan kewajiban, kebutuhan bersama, keputusan kelompok, dan partikularisme. Hal ini juga seperti dinyatakan oleh Bochner dan Hesketh (1994), bahwa individualisme/kolektivisme mengacu pada hubungan antar individual dengan kolektivitas di dalam kelompok masyarakat. Kolektivis memiliki kontak non-formal yang lebih banyak dengan rekan-rekan kerjanya, mampu memahami staf dengan lebih baik, dan cenderung bekerja secara tim.

Bukti-bukti yang diperoleh dari penelitian-penelitian sebelumnya menunjukkan bahwa komponen individualis/kolektivis yang berbeda memiliki hubungan dengan budaya. Chen dan West (2008) melakukan meta-analisis yang hasilnya mengindikasikan bahwa terdapat perbedaan budaya pelajar yang berasal dariJepang dan Amerika Serikat. Secara spesifik, hasil penelitian tersebut menyimpulkan bahwa *competitveness* dan *uniqueness* mempengaruhi tingkat individualisme global dalam tujuan yang berbeda. Anderson et al. (2018) menunjukkan bahwa orientasi kognitif menawarkan pendekatan yang layak dalam format kelompok.

BAB II

Review Hasil Penelitian Gaya Kognitif

2.1. Review Hasil Penelitian Gaya Kognitif Di Berbagai Bidang

Penelitian yang dilakukan oleh Weisz *et al.* (1975) mengembangkan model pengukuran gaya kognitif *field dependence* dengan menggunakan desain yang memisahkan antara *mental age* (MA) dengan *chronological age* (CA). Model tersebut digunakan pada partisipan anak-anak dan dikenal dengan *Children's Embedded Figures Test* (CEFT). Model ini dapat dimanfaatkan untuk menyelaraskan kesenjangan antara sifat-sifat yang melekat padagaya kognitif dengan sifat mendasar dari tingkat perkembangan kognitif. Studi yang dilakukan oleh Benbasat dan Taylor (1978) mengeksplorasi sifat dari gaya kognitif dan pengaruh perbedaan gaya kognitif terhadap penggunaan dan desain sistem informasi. Studi ini memberikan beberapa pendapat yang disajikan untuk mengklarifikasikan sifat-sifat gaya kognitif dan sejumlah model gaya kognitif yang aplikatif untuk desain dan riset sistem informasi. Saran-saran yang diberikan untuk penilaian analis sistem informasi yang memanfaatkan perbedaan gaya kognitif pengguna ke dalam desain sistem informasi. Selain itu juga dapat mengatasi beberapa masalah yang terindikasi dapat meningkat selama proses implementasi.

Studi yang dilakukan oleh Davis dan Frank (1979), menunjukkan bahwa dalam eksperimen mengenai pengingatan kembali (*free recall*), peserta didik *field independent* mampu mengingat daftar kata yang lebih baik dibandingkan peserta didik *field dependent* ketika daftar dibangun dengan pola yang lebih sulit. Selain itu, mahasiswa *field independent* lebih baik dalam belajar dan mengingat informasi tekstual yang tinggi pada struktur yang penting.

Studi lainnya dilakukan oleh Dermot *et al.* (1982) mengenai pengaruh pelatihan intensif keterampilan *decoding* terhadap kognitif *field dependence* pada anak-anak kelas pertama. Pengukuran pada studi ini menggunakan *Portable Rod and Frame Test (PRFT)* dan *Children's Embedded Figures Test (CEFT).* Hasilnya menunjukkan bahwa adanya hubungan yang tinggi antara dimensi yang tertanam dalam *field dependent-independent* dan kemampuan membaca untuk anak-anak tetapi tidak berpengaruh terhadap kemampuan mengidentifikasi vertikalitas.

Penelitian yang dilakukan oleh Green dan Hughes (1986) menguji pengaruh tipe *training* dan gaya kognitif terhadap keefektifan penggunaan *decision support system* oleh manajer. Tipe *training* terdiri dari dua jenis yaitu seminar dan workshop sedangkan gaya kognitif dikategorikan menjadi gaya analitik dan heuristik. Pengujian menggunakan metode eksperimen laboratorium dengan 63 orang partisipan manajer. Hasilnya menunjukkan adanyainteraksi antara gaya kognitif dengan tipe *training* dalam mempengaruhi pilihan manajer memanfaatkan DSS.

Penelitian yang dilakukan oleh Liu dan Reed (1994) menguji perbedaan strategi pembelajaran gaya kognitif *field depedence* orang-orang yang berada di lingkungan *hypermedia assisted instructional setting*. Metode eksperimen digunakan dengan partisipan63 mahasiswa dari latar belakang tidak berbahasa Inggris yang terlibat dalam *hypermedia- assisted language learning*. Mahasiswa yang *field independent* (FI) cenderung untuk membentuk struktur mereka sendiri saat bekerja dengan lingkungan hypermedia. Berbeda dengan mahasiswa *field dependent* (FD) lebih cenderung untuk mengikuti struktur yang disediakan oleh software. Lebih jauh, mahasiswa FD mengembangkan lebih banyak spectatordan pendekatan sosial untuk belajar. Menguji empat perbedaan alat pencarian database dengan siswa yang memahami *hypermedia database searches.*

Lin dan Davidson (1994) menguji pengaruh dari *hypertext lingking structure* terhadap *comprehension* dan *attitudes* dari 139 siswa. FI berkinerja lebih baik dan menunjukkan sikap yang positif terhadap materi hypermedia dibandingkan FD student. Motivasi untuk belajar berinteraksi dengan *learning styles.* Leader dan Klein (1996) menunjukkan bahwa *field dependent* memerlukan keterlibatan baik kemampuan perceptual dan pemecahan masalah. Individu *field independent* menunjukkan kemampuan analisis yang lebih besar dari pada individu *field dependent*, dan disiplin ilmu seperti akuntansi, teknik, dan ilmu pengetahuan cenderung menarik bagi individu *field independent*, sedangkan hal yang sebaliknya ditemukan untuk disiplin ilmu seperti keperawatan dan seni. Penelitian pada umumnya menunjukkan bahwa siswa *field independent* mencerminkan tingkat prestasi yang lebih tinggi dari siswa *field dependent*. Secara umum, literatur yang ada menunjukkan bahwa siswa *field independent* melakukan hal-hal lebih baik dari pada siswa *field-dependent*, ia berpendapat bahwa siswa *field-independent* akan tampil lebih baik dalam akuntansi keuangan lanjutan dibandingkan siswa *field-dependent* (Jones dan Wright, 2010).

Penelitian yang dilakukan oleh Honeyman dan Miller (1998) menguji pengaruhmetode pendekatan pengajaran terhadap pencapaian dan kepuasan pembelajar pada gaya kognitif *field dependent-independent*. Pendekatan pengajaran terdiri dari tiga bentuk yaitu model *field dependent, field independent* dan kombinasi. Pada gaya kognitif dikategorikan pada *field independent* dan *field dependent*. Metode eksperimen dengan menggunakan 42 mahasiswa level senior ilmu hewan sebagai partisipan. Hasilnya menunjukkan pendekatan pengajaran model kombinasi paling efektif digunakan baik untuk siswa dengan gaya kognitif *field independent* maupun *field dependent*.

Sadler-Smith (1998) melakukan *review* mengenai konsep gaya kognitif dan identifikasi model dari gaya yang bermanfaat bagi manajer dan praktisi sumber daya manusia. Hal ini

penting bagi pencapaian kinerja individu baik didalam maupun antar organisasi. Model yang dibangun menempatkan *cognitive ability, cognitive style* dan *cognitive strategies* merupakan variabel intervening antara proses pada individu/organisasi dengan kinerja pada individu/organisasi. Isu tersebut bermanfaat bagi organisasi dalam rangka mempertimbangkan gaya pengetahuan yang mungkin berintegrasi dengan area aktivitas yang penting.

Penelitian yang dilakukan oleh Allinson dan Hayes (2000) menguji perbedaan gaya kognitif diberbagai variasi budaya. Studi ini membedakan dikotomi tradisional antara *'intuitive' East* dan *'analytic' West.* Sampel yang digunakan sebagai partisipan adalah 394 manager 394 manager dari 6 kebangsaan dan 360 siswa manajemen dari lima kebangsaan yang melengkapi indek cognitive style. Gaya kognitif dikategorikan sebagai gaya intuitive dan analytic. Hasilnya menunjukkan bahwa gaya intuive lebih banyak dimiliki oleh manager dengan kebangsaan Anglo, Eropa Utara, dan Eropa Latin. Sedangkan gaya analytic lebih banyak dimiliki oleh manager pada negara-negara berkembang dan kawasan Arab. Hal ini berimplikasi pada pengembangan industri dimana mereka berdomilisi. Hasil studi ini juga bermanfaat untuk mengatasi perbedaan budaya diantara para manager yang berkaitan dengan gaya kognitif yang mereka miliki. Penelitian yang dilakukan oleh Sadler-Smith *et al.* (2000) merupakan replikasi dan ekstensi dari penelitian yang dilakukan oleh Allison dan Hayes (1996) mengenai ukuran *Cognitive Style Index (CSI)*. Penelitian ini berusaha menginvestigasi konstruk dan validitas CSI. Partisipan yang terlibat lebih dari seribu orang. Hasilnya menunjukkan *maximum likelihood factor analysis* yang diperoleh secara umum selaras dengan hasil Allison dan Hayes (1996). Tidak terdapat hubungan antara ukuran CSI dengan ukuran lainnya (*Cognitive Style Analysis*/ CSA). Hal ini menunjukkan bahwa gaya kognitive bebas terhadap gender, tetapi berkaitan dengan *job level*. Hasil penelitian ini juga menunjukkan adanya perbedaan gaya kognitif antara manager pada bisnis kecil di Hong Kong dan UK.

Studi yang dilakukan oleh Sadler-Smith (2002) menguraikan tentang peran gaya kognitif dalam pendidikan manajemen. Studi ini mengemukakan asersi bahwa teori dan prinsip-prinsip yang diturunkan dari psikologi kognitif merupakan pusat dalam pengembangan *self-awareness* dan sebuah pemahaman dari proses pembelajaran seseorang. Untuk mengakomodasi perbedaan dalam gaya kognitif dapat dilakukan melalui berbagai metode dan strategi pembelajaran dan instruksional baik melalui metode pengajaran dan pembelajaran konvensional tetapi juga melalui metode instruksional berbasis komputer.

Penelitian yang dilakukan oleh White *et al.* (2003) menguji peran gaya kognitif, budaya organisasi dan penggunaan informasi dalam merespon dan menginterpretasi situasi pasar. Dengan menggunakan metode skenario kasus, peneliti menguji model anteseden dari respon untuk intrepretasi situasi pasar. Konteks keputusan yang diambil adalah keputusan marketing dalam merekomendasikan anggaran pengiklanan dan promosi tahunan. Data diperoleh dari *nationwide sample* dari eksekutif marketing rumah sakit. Hasilnya menunjukkan bahwa gaya kognitif, budaya organisasi dan penggunaan informasi mempengaruhi persepsi manajer terhadap situasi pasar sebagai salah satu cara mereka untuk mengontrol hasil keputusan. Semakin manajer mampu mengontrol situasi maka semakin mereka menilai situasi tersebut sebagai sebuah kesempatan, sehingga semakin tinggi *magnitude* dari respon mereka. Penelitian yang dilakukan oleh Armstrong *et al.* (2004) adalah menguji pengaruh perbedaan dan persamaan dalam dimensi *analytic-intuitive* dari gaya kognitif dan proses supervisi. Data dikumpulkan dari 421 pasangan partner penelitian yang dibandingkan antara supervisor akademik dengan siswa. Hasilnya menunjukkan bahwa supervisor yang analitis lebih mengayomi dan kurang dominan dibandingkan rekannya yang intuitif. Hal ini mengindikasikan tingginya tingkat kedekatan dalam hubungan mereka. Hubungan tersebut membawa pada peningkatan kesenangan dalam hubungan dan tingginya kinerja siswa. Pengaruh tersebut paling tinggi pada pasangan dimana siswa dan supervisor lebih analitis.

Penelitian yang dilakukan oleh Chilton*et al.* (2005) menguji kesesuaian antara gaya kognitif dari pengembang *software* dan persepsi terhadap gaya kognitif yang diperlukan oleh lingkungan pekerjaan dan juga pengaruhnya terhadap stress dan kinerja. Data yang digunakan diperoleh dari studi lapangan pada 123 objek *software developers* dengan kinerja yang turun dan tingkat stress yang meningkat sebagai gap antara gaya kognitif yang lebih luas. Hasilnya menunjukkan bahwa gaya kognitif dapat dipertimbangkan dalam mengelola kinerja dan tingkat stress para pengembang *software*.

Penelitian yang dilakukan oleh Hough dan Ogilvie (2005) menguji bagaimana gaya kognitif yang diukur melalui MBTI dapat mempengaruhi hasil keputusan strategik. Data diperoleh dari 749 manager yang hadir pada pelatihan program eksekutif yang disponsori oleh *Center for Creative Leadership*. Hasilnya menunjukkan bahwa manager yang *intuiting/thinking* menggunakan intuisinya untuk membuat lompatan kognitif berdasarkan tujuan informasi untuk menghasilkan keputusan yang lebih berkualitas. Sebaliknya manager yang *sensing/feeling* menggunakan waktu untuk menghasilkan keputusan yang diterima secara sosial. Tidak terdapat pengaruh pada ketegasan atau keefektivan yang dirasakan pada manager yang *perceiving* atau *judging.* Hasil ini juga menunjukkan bahwa manager yang *extraverted* lebih efektif dibandingkan yang *introverted*. Dengan demikian gaya kognitif mempengaruhi hasil keputusan aktual sebagaimana orang mempersepsikan kinerja keputusan seseorang.

Penelitian yang dilakukan oleh Cools dan Broeck (2007) mencoba mengembangkan dan memvalidasi *Cognitive Style Indicator (CoSI).* Dengan menggunakan tiga jenis sampel dari 133 master of business administration (MBA) students, hasilnya menunjukkan bahwa item-item reliabilitas dan faktor analisis konsisten dan homogen dari tiga jenis gaya kognitif yaitu *knowing, planning*, dan *creating.* Penelitian ini juga mendukung validitas konvergent dan diskriminan dengan memasukkan instrumen ukuran gaya kognitif yang lain, personalitas dan kinerja

akademik dalam proses validasi. Penelitian ini memberikan kontribusi bahwa pengukuran gaya kognitif *analityc-intuitive* dapat diperbaiki dengan mengkombinasikan dengan gaya analytic dengan gaya *knowing* dan *planning.* Selain itu pengembangan validitas dan realibilitas untuk intrumen gaya kognitif pada penggunaan di organisasi.

Penelitian yang dilakukan oleh Guisande *et al.* (2007) bertujuan untuk menilai apakah anak-anak dengan perbedaan gaya kognitif *field independent-dependent* mempengaruhi perbedaan dalam kinerja. Kinerja dalam penugasan diukur melalui aspek-aspek dari fungsi-fungsi *attentional*. Dengan menggunakan partisipan 149 anak-anak, gaya kognitif dibedakan menjadi *field dependent, intermediate,* atau *field independet*. Kapasitas memori dikategorikan sebagai *digits forward test*, memori verbal adalah *digits backward test*, kapasitas fokus, shift dan *maintain attention* (*digit symsol test*), kapasitas untuk menjaga atensi yaitu *visual search* dan *attention test*. Hasilnya menunjukkan anak-anak yang *field independent* berkinerja lebih tinggi dibandingkan *intermediate* dan *field dependent* pada seluruh jenis tes kecuali *digits forward test*. Penelitian yang dilakukan oleh Noble, Miller dan Heckman (2008) bertujuan untuk mengidentifikasi gaya kognitif dari siswa keperawatan dan profesi kesehatan lainnya. Pemahaman terhadap gaya kognitif siswa diharapkan bermanfaat untuk perbaikan kurikulum sekolah. Selain itu juga dapat digunakan untuk mendesain lingkungan pembelajaran dan strategi instrusional yang ditujukan untuk siswa yang berbeda freferensi kognitif. Sampel yang digunakan adalah 876 siswa sukarelawan dari program ilmu kesehatan. Model pengukuran gaya kognitif menggunakan *Group Embedded Figures Test* (GEFT) (Witkin *et al.,* 1977). Hasilnya menunjukkan bahwa terdapat perbedaan yang signifikan dalam skore rata-rata GEFT antara *undergraduate nursing student* dengan *did graduate nursing student.* Siswa jurusan keperawatan cenderung lebih *field dependent* dibandingkan dengan siswa lain pada bidang kesehatan lainnya. Berdasarkan proses kognitif tersebut, siswa keperawatan yang*field dependent* kemungkinan

mengalami risiko kegagalan akademik. Dengan demikian strategi instruksional perlu disesuaikan dengan kurikulum akademik.

Penelitian yang dilakukan oleh Chen *et al.* (2009) bertujuan untuk mengeksplorasi manfaat dari aplikasi skala *Cognitive Styles Analysis (CSA)* untuk mengukur kemampuan operasional individu para operator dalam menggunakan suatu *control-display device.* Hal ini karena operator yang kompeten akan mampu menurunkan kemungkinan kegagalan serius dalam ruang kendali, yang penting untuk mengukur secara efektif perbedaan individual diantara operator. Metode penelitian menggunakan eksperimen 2x2 dengan *cognitive style* terdiri dari *field dependent-independent* dan *control display pairing patterns* terdiri dari kopartisipan dan non kopartisipan. Partisipan terdiri dari 60 operator dari lima control room (dari tower airport di Taiwan dan Cina). Hasilnya menunjukkan bahwa skala CSA mampu membedakan antara karyawan yang menggunakan kapasitas mereka untuk mengoperasikan *control-display device* secara efektif. Hal ini menunjukkan bahwa skala CSA dapat dimanfaatkan sebagai ukuran menilai kriteria operator di ruang kontrol. Penelitian yang dilakukan oleh Kickul*et al.* (2009) adalah untuk menilai peran gaya kognitif dalam hubungannya dengan entrepreneurial *self-efficacy* dan ketertarikan untuk menjadi entrepreneur. Hal ini diletakkan pada pembedaan serangkaian aktivitas yang harus dilakukan selama proses pembentukan usaha baru. Partisipan adalah 138 mahasiswa program MBA. Seluruh mahasiswa terlibat dalam kelas entrepreneurship yang berfokus pada usaha baru dan manajemen. Gaya kognitif yang dinilai adalah gaya analytic dan intuitive. Hasilnya menunjukkan bahwa individu dengan perbedaan gaya kognitif tidak terlihat sebagai proses yang sama dengan *self-efficacy* dalam seluruh jenis penugasan untuk membentuk usaha baru. Penelitian tersebut menunjukkan bahwa gaya kognitif sangat tepat dalam mengarahkan ketertarikan pada langkah yang spesifik pada proses pembentukan usaha baru yang sesuai dengan preferensi gaya kognitif mereka. Individu dengan gaya intuitif

cenderung tinggi dalam *self-efficacy belief* dalam hubungannya dengan ketertarikan mereka. Berbeda dengan individu *analytic,* mereka berada pada tingkat yangtinggi dalam *entrepreneurial efficacy* untuk perencanaan, pemanfaatan sumber daya dan langkah implementasi dari proses pembentukan usaha.

Penelitian yang dilakukan oleh Ku dan Soulier (2009) menguji pengaruh tujuan pembelajaran terhadap kinerja belajar pada remaja yang *field dependent-independent* dalam lingkungan *hypertext*. Selain itu penelitian ini juga menguji apakah tujuan pembelajaran yang umum dan spesifik memiliki pengaruh yang berbeda pada remaja dengan gaya kognitif yang berbeda (*field dependent-independent*). Pengujian eksperimen menggunakan 108 orang partisipan diberikan dua jenis perlakuan *'specific preset learning goal'* dan *'general preset learning goal'*. Dengan menggunakan dua jenis perlakuan tersebut, partisipan diminta untuk menavigasikan program pengajaran *hypertext* secara identik dilanjutkan dengan menyelesaikan tugas eksperimen. Hasilnya mengindikasikan bahwa remaja yang memiliki gaya kognitif *field dependent* berkinerja lebih baik ketika mereka menerima *spesific learning goal* dibandingkan *general learning goal*. Hasil studi ini memberikan arahan bagaimana mengatasi kelemahan dari gaya belajar remaja yang *field dependent* di lingkungan *hypertext*.

Penelitian yang dilakukan oleh Morgan dan Rayner (2011) menilai kinerja dari *non-commissioned officers* pada program yang penting dalam meningkatkan karir pada organisasi militer di British. Studi ini mengamati peran perbedaan gaya kognitif individu dalam program pelatihan dan pengembangan karir. Gaya kognitif yang digunakan dalam penelitian ini adalah *Wholist-Analytic* (W-A) dan *Verbal-Imagery* (V-I). Metode eksperimen digunakan dengan 226 partisipan yang hadir pada kelas promosi untuk NCOs. Hasilnya penelitian ini memberikan model bagi HRD yang membandingkan perspektif gaya kognitif terkait dengan pengembangan karir dan kinerja organisasional yang diperlukan. Studi ini menunjukkan bahwa partisipan

peserta kursus memiliki motivasi yang tinggi dan pencapaian perspektif tertentu berkaitan dengan pengembangan karir sebagai *'knowledge'*.

Penelitian yang dilakukan oleh Spektor *et al.* (2011) berkaitan dengan paradok inovasi yang menguji gaya kognitif yang berkaitan dengan implementasi dan pengaruhnya terhadap inovasi radikal kelompok yang menghasilkan kontribusi kreatif. Studi ini juga menguji mediasi dari proses tim. Gaya kognitif yang diuji adalah gaya *conformist* dan *attentive-to-detail*. Dengan menggunakan data 41 tim dalam perusahaan R&D, penelitian ini menemukan bahwa anggota yang kreatif dan *conformist* dalam tim dapat meningkatkan tim yang berinovasi secara radikal sedangkan tim yang *attentive-to-detail* tidak dapat melakukan hal itu. Anggota tim kreatif meningkatkan konflik tugas dan menghambat kepatuhan tim terhadap standar. Sebaliknya, *conformist* mengurangi konflik tugas, dan anggota *conformist* dan *attentive-to-detail* meningkatkan kepatuhan tim terhadap standar. Tim mampu memediasi pengaruh gaya kognitif terhadap inovasi.

Penelitian yang dilakukan oleh Meng *et al.* (2012) bertujuan untuk mengeklporasi hubungan antara *'cognitive control' system* dengan sistem proses konflik selama penugasan *stimulus-matching*. Dengan menggunakan komponen ERP (N270 dan P300), studi ini menguji bagaimana perbedaan individu yang *field dependent–field independent* memproses informasi. Penelitian ini menggunakan 160 siswa yang diuji dengan *Wechsler Adult Intelligence Scale* (WAIS) dan stimulus-matching task. ERP diukur selama subjek berkinerja pada tugas stimulus-matching dengan mengkategorikan dua figur yang disajikan secara berurutan baik sebagai *match* (bentuk yang sama) atau sebagai *conflict* (bentuk yang berbeda). Hasilnya menunjukkan bahwa rata-rata amplitude dari N270 pada kelompok FI dalam mempengaruhi proses konflik melalui sistem '*cognitive control*' karena perbedaan kemampuan dari subjek FD dan FI dalam memobilisasi dan atau mengalokasikan sumber- sumber perhatian yang dapat diindekskan melalui N270.

Penelitian yang dilakukan oleh Ahmed *et al.* (2012) menguji hubungan antara personalitas dan gaya kognitif dengan gaya pengambilan keputusan manager. Sampel yang digunakan adalah 130 mahasiswa lulusan S1 manajemen. Gaya pengambilan keputusan menggunakan pengambilan keputusan mengenai Inventory dan gaya kognitif menggunakan ukuran *Myer Briggs Type Indicator*. Hasilnya menunjukkan bahwa tipe personalitas '*intuitive'* secara signifikan berhubungan dengan gaya keputusan *konseptual*. Tipe personalitias *intuitive* menunjukkan korelasi positif dengan gaya keputusan *directive,* tetapi berhubungan negatif dengan keperilakuan. Namun demikian, tipe personalitas '*feeling'* berhubungan positif dengan gaya perilaku keputusan. Tipe personalitas '*judging'* memiliki hubungan yang signifikan dengan gaya keputusan *analytical* sedangkan tipe personalitas *'perceiver'* memiliki hubungan sebaliknya. Lebih jauh, ditemukan bahwa gaya kognitif *systematic* dan *intuitive* memiliki hubungan yang terbalik dengan gaya perilaku keputusan.

Penelitian yang dilakukan oleh Armstrong *et al* (2012) dilakukan sejalan dengan meningkatnya perhatian pada penerapan pendekatan kognitif untuk industri, kerja dan psikologi organisasi. Selama 40 tahun terakhir pertumbuhan minat terhadap penerapan gaya kognitif pada bidang bisnis dan manajemen cukup berkembang. Tujuan penulisan ini adalah pertama, ingin memajukan pemahaman penelitian gaya kognitif dengan trend dan perspektif yang berkaitan dengan bisnis dan manajemen. Kedua, mengidentifikasi kesenjangan dalam literatur dan menjanjikan bidang penelitian yang dapat dikembangkan lebih lanjut. Metode penelitian ini dilakukan dengan cara mengulas makalah yang diterbitkan antara tahun 1969 dan 2009. Delapan tema yang muncul dan di analisis yaitu: (a) isu-isu penelitian; (b) budaya nasional; (c) kerja sama tim dan hubungan interpersonal; (d) pembelajaran; (e) pengambilan keputusan; (f) kreativitas, inovasi dan kewirausahaan; (g) penjualan dan pemasaran; dan (h) manajemen sistem informasi, manajemen informasi dan penggunaan. Ketiga, mengidentifikasi validitas dan metode yang dapat

diandalkan untuk penilaian gaya kognitif yang digunakan dalam bisnis dan manajemen. Penelitian tersebut menarik sejumlah kesimpulan mengenai kondisi penelitian gaya kognitif saat ini dan arah yang menjanjikan untuk penelitian masa depan.

Tabel 2.1 menyajikan ringkasan penelitian mengenai gaya kognitif di berbagai bidang kajian.

Tabel 2.1

Hasil Penelitian Tentang Gaya Kognitif

Berbagai Bidang Ilmu

No.	Studi	Jenis perlakuan Gaya Kognitif	Subjek dan domain penugasan	Hasil
1.	Weisz, Patrick O'neill dan Pamela O'Neill (1975)	*Field dependent* (FI); *Field independent* (FD).	Mental Age (MA); Chronological Age (CA); Children's Embedded Figures Test (CEFT).	Model ini dapat dimanfaatkan untuk menyelaraskan kesenjangan antara sifat-sifat yang melekat pada gaya kognitif dengan sifat mendasar dari tingkat perkembangan kognitif.
2.	Benbasat dan Taylor (1978)	*Field dependent* (FI); *Field independent* (FD); Analytic;Heuristic.	Review Literatur; desain sistem informasi	Pendapat yang disajikan untuk mengklarifikasikan sifat-sifatgaya kognitif dan sejumlah modelgaya kognitif yang aplikatif untuk desain dan riset sistem informasi
3.	Davis dan Frank (1979)	*Field dependent* (FI); *Field independent* (FD).	Mahasiswa; *free recall*	FI *learners* mampu mengingat daftar kata yang lebih baik dibandingkan peserta didik FD ketika daftar dibangun denganpola yang lebih sulit. Selain itu, mahasiswa FI lebih baik dalam belajar dan mengingat informasi tekstual yang tinggi pada structural penting.
4.	Dermot, Dodd E Roberts dan Walter G. McIntire (1982)	*Field dependent* (FI); *Field independent* (FD).	Anak-anak kelas pertama; Keterampilan Decoding; Portable Rod and Frame Test (PRFT); Children's Embedded Figures Test (CEFT)	Adanya hubungan yang tinggi antara dimensi yang tertanam dalam field dependence-independence dan kemampuan membaca untuk anak-anak tetapi tidak berpengaruh terhadap kemampuan mengidentifikasi vertikalitas.

5.	Gary I. Green&Cary T. Hughes (1982)	Analytics;Heuristics		Adanya interaksi antara gaya kognitif dengan tipe training dalam mempengaruhi pilihan manajer memanfaatkan DSS
6.	Liu dan Reed (1994)	*Field dependent* (FI); *Field independent* (FD).	6 mahasiswa; *hypermedia assisted instructional setting*	FI cenderung untuk membentuk struktur mereka sendiri saat bekerja dengan lingkungan hypermedia. Sedangkan FD cenderung untuk mengikuti struktur yang disediakan oleh software. FD mengembangkan lebih banyak spectator dan pendekatan sosial untuk belajar.
7.	LeaderdanKlein(1996)	*Field dependent* (FI); *Field independent* (FD).	Mahasiswa; perceptual ability dan problem solving.	Individu FI menunjukkan kemampuan analisis yang lebih besar dari pada individu FD, dan disiplin ilmu seperti akuntansi, teknik, dan ilmu pengetahuan cenderung menarikbagi individu FI, sedangkan FD untuk disiplin ilmu seperti keperawatan dan seni.
8.	Lin dan Davidson (1994)	*Field dependent* (FI); *Field independent* (FD).	139 siswa; hypertext lingking structure; comprehension dan attitudes	FI berkinerja lebih baik dan menunjukkan sikap yang positif terhadap materi hypermedia dibandingkan FD student. Motivasi untuk belajar berintaksi dengan *learning styles*.
9.	Honeyman dan Miller (1998)	*Field dependent* (FI); *Field independent* (FD).	42 mahasiswa level senior ilmu hewan; pencapaian dan kepuasan pembelajar.	Pengajaran model kombinasi paling efektif digunakan baik untuk siswa dengan gaya kognitif *field independent* maupun *field dependent*.
10.	Sadler-Smith (1998)	*cognitive ability; cognitive style; cognitive strategies*	Review mengenai konsep gaya kognitif dan identifikasi model praktisi sumber daya manusia	*Cognitive ability, cognitive style* dan *cognitive strategies* merupakan variabel intervening antara proses dengan kinerja pada individu/organisasi. Bermanfaat bagi organisasi dalam rangka mempertimbangkan gaya pengetahuan yang berintegrasi dengan area aktivitas yangpenting.
11.	Allinson dan Hayes (2000)	*'intuitive' East; 'analytic' West*	394 manager & 360 siswa berbagai kebangsaan; indek cognitive style	Gaya intuive lebih banyak dimiliki oleh manager kebangsaan Anglo, Eropa Utara, dan Eropa Latin. Gaya analytic lebih banyak dimiliki oleh manager pada negara-negara berkembang dan kawasan Arab.
12.	Sadler-Smith, Spicer dan Tsang (2000)	*Intuitive & Analytic*	Lebih dari 1000 orang partisipan; *Cognitive Style Index (CSI)*.	Maximum likelihood factor analysis yang diperoleh secara umum selaras dengan hasil Allison dan Hayes (1996). Tidak

				terdapat hubungan antara ukuran CSI dengan ukuran lainnya (Cognitive Style Analysis/ CSA). Hal ini menunjukkan bahwa gaya kognitive bebas terhadap gender, tetapi berkaitan dengan job level.
13.	Sadler-Smith (2002)	*Verbal-Imagery (V-I); Wholist-Analytical (W-A); Rational-Intuitive (R-I).*	*Review; self-awareness; own learning processes*	Untuk mengakomodasi perbedaan dalam gaya kognitif dapat dilakukan melalui berbagai metode dan strategi pembelajaran dan instruksional baik melalui metode pengajaran dan pembelajaran konvensional tetapi juga melalui metode instruksional berbasis komputer.
14.	White, Varadarajan dan Dacin (2003)	Extrovert-Introvert; Judging-Perceiving; Sensing-Intuiting; Thingking-Feeling.	Eksekutif marketing rumah sakit; Keputusan marketing dalam merekomendasikan anggaran pengiklanan dan promosi tahunan	Gaya kognitif, budaya organisasi dan penggunaan informasi mempengaruhi persepsi manajer terhadap situasi pasar sebagai salah satu cara mereka untuk mengontrol hasil keputusan. Semakin manajer mampu mengontrol situasi maka semakin mereka menilai situasi tersebut sebagai sebuah kesempatan, sehingga semakin tinggi magnitude dari respon mereka.
15.	Armstrong, Allinson dan Hayes (2004)	*Intuitive & Analytic*	421 pasang partisipan; kinerja pasangan supervisor dan siswa.	Supervisor yang analitis lebih mengayomi dan kurang dominan dibandingkan rekannya yang intuitive. Hal ini membawa pada peningkatan kesenangan dalam hubungan dan tingginya kinerja siswa. Pengaruh tersebut paling tinggi pada pasangan dimana siswa dan supervisor lebih analitis.
16.	Chilton, Hardgravedan Armstrong (2005)	*Adaption ; Innovation*	123 software developers; person-job cognitive style fit; person-job cognitive style misfit.	Gaya kognitif dapat dipertimbangkan dalam mengelola kinerja dan tingkat stress para pengembang software.
17.	Hough dan Ogilvie (2005)	*Intuiting-Thinking; Sensing-Feeling; Perceiving- Judging; Extraverted-Introverted*	749 manager; MBTI; keputusan strategik	Manager *intuiting/ thinking* menggunakan intuisinya untuk menghasilkan keputusan yang lebih berkualitas. Manager yang *sensing/feeling* menggunakan waktu untuk menghasilkan keputusan yang diterima secara sosial. Tidak terdapat pengaruh pada ketegasan atau keefektivan

				yang dirasakan pada manager yang *Perceiving* atau *Judging*. Manager yang Extraverted lebih efektif dibandingkan Introverted.
18.	Cools dan Broeck (2007)	*Intuitive & Analytic Knowing; Planning*; *Creating.*	133 MBA Student; *Cognitive Style Indicator (CoSI).*	Item-item reliabilitas dan faktor analisis konsisten dan homogen dari tiga jenis gaya kognitif yaitu *knowing, planning*, dan *creating.* Gaya kognitif *analityc-intuitive* dapat diperbaiki dengan mengkombinasikan dengan gaya analytic dengan gaya *knowing* dan *planning.*
19.	Guisande, Paramo, Tinajero dan Almeida (2007)	*Field dependent* (FI); *Field independent* (FD).	149 anak-anak;fungsi-fungsi attentional	Anak-anak *field independent* berkinerja lebih tinggi dibandingkan *intermediate* dan *field dependent* pada seluruh jenis tes kecuali *digits forward test*.
20.	Noble, Miller dan Heckman (2008)	*Field dependent* (FI); *Field independent* (FD).	876 siswa program ilmu kesehatan; Group Embedded Figures Test(GEFT)	Terdapat perbedaan skore rata-rata GEFT antara undergraduate dengan did graduate nursing student. Siswa keperawatan lebih FI dibandingkan d siswa bidang kesehatan lainnya. Siswa keperawatan yang *field dependent* kemungkinan mengalami risiko kegagalan akademik.
21.	Chen, Lee dan Chang (2009)	*Field dependent* (FI); *Field independent* (FD).	60 operator dari lima control room; *CognitiveStyles Analysis (CSA)*	Skala CSA mampu membedakan karyawan yang menggunakan kapasitas mereka untuk mengoperasikan *control-display device* secara efektif. Ini menunjukkan bahwa CSA dapat dimanfaatkan sebagai ukuran menilai kriteria operator di ruang kontrol.
22.	Kickul, Gundry, Barbosa dan Whitcanack (2009)	*Intuitive & Analytic*	138 mahasiswa Program MBA; proses aktivitas entrepreneurial self-efficacy	Individu dengan gaya intuitive cenderung tinggi dalam *self-efficacy belief* dalam hubungannya dengan ketertarikan mereka. Sedangkan individu dengan gaya *analytic* tinggi dalam *entrepreneurial efficacy* untuk perencanaan, marshalling sumber daya dan langkah implementasi dari proses pembentukan usaha.
23.	Ku dan Soulier(2009)	*Field dependent* (FI); *Field independent* (FD).	108 remaja; *'specific preset learning goal'* dan *'general preset learning goal'*; program pengajaran hypertext.	Remaja yang *field dependent* berkinerja lebih baik ketika mereka menerima *spesific learning goal* dibandingkan *general learning goal*. Hasil studi ini memberikan arahan bagaimana mengatasi kelemahan dari gaya belajar remaja yang *field*

				dependent di lingkungan hypertext.
24.	Morgan dan Rayner (2011)	*Wholist-Analytic* (W-A); *Verbal-Imagery* (V-I)	226 anggota militer; program pelatihan dan pengembangan karir.	Menghasilkan Model bagi HRD yang membandingkan perspektif gaya kognitif terkait dengan pengembangan karir dan kinerja. Studi ini menunjukkan bahwa partisipan peserta kursus memiliki motivasi yang tinggi dan pencapaian perspektif tertentu berkaitan dengan pengembangan karir sebagai 'knowledge'.
25.	Spektor, Erez dan Naveh (2011)	*Conformist*; A*ttentive-to-detail*	41 tim dalam perusahaan R&D; inovasi radikal untuk kontribusi kreatif	Anggota *conformist* meningkatkan inovasi radikal; *attentive-to-detail* tidak. Anggota tim kreatif meningkatkan konflik tugas dan menghambat kepatuhan pada standar. *Conformist* mengurangi konflik tugas, dan *conformist* dan *attentive-to-detail m*eningkatkan kepatuhan pada standar.
26.	Meng, Mao, Sun, Zhang, Han, Lu, a Huang dan Wang (2012)	*Field dependent* (FI); *Field independent* (FD).	160 siswa; Wechsler Adult Intelligence Scale (WAIS); stimulus-matching	Rata-rata amplitude dari N270 pada kelompok FI dalam mempengaruhi proses konflik melalui sistem '*cognitive control*' karena perbedaan kemampuandari subjek FD dan FI dalam memobilisasi dan ata mengalokasikan sumber-sumber perhatian yang dapat diindekskan melalui N270.
27.	Ahmed, Hasnain dan Venkatesan (2012)	*Intuitive; intuitive; judging; analytical; perceiver*	130 mahasiswa lulusan S1 manajemen; gaya pengambilan keputusan manager; Myer Briggs Type Indikator	'*intuitive'* berhubungan dengan gaya keputusan *konseptual*. Tipe personalitias *intuitive* menunjukkan korelasi positif dengan gaya keputusan *directive,* tetapi berhubungan negatifdengan keperilakuan. tipe *feeling'* berhubungan positif dengan gaya perilaku. Tipe '*judging'* signifikan dengan gaya keputusan *analytical, 'perceiver'* memiliki hubungan sebaliknya. Lebih jauh, ditemukan bahwa gaya kognitif *systematic* dan *intuitive* memiliki hubungan yang terbalik dengan gaya perilaku keputusan.
28.	Armstrong, Cools dan Sadler-Smith (2012).	(a) isu-isu penelitian; (b) budaya nasional; (c) kerja sama tim	mengulas makalah yang diterbitkan antara tahun 1969 dan	Menarik sejumlah kesimpulan mengenai keadaan penelitian gaya kognitif saat ini dan arah yang menjanjikan untuk penelitianmasa

		(d) pembelajaran; (e) keputusan; (f) kreativitas, inovasi dan kewirausahaan; (g) penjualan dan pemasaran; dan	2009	depan.

2.2. Review Hasil Penelitian Gaya Kognitif *Field Dependence* di Bidang Akuntansi

Beberapa studi tentang kemampuan auditor mendeteksi *fraud* yang menunjukkan bahwa gaya kognitif auditor mempengaruhi kemampuan auditor dalam mendeteksi *fraud* (Ho dan Rogers 1993, Bernardi 2003, Pincus 1990). Studi Pincus (1990) menunjukkan bahwa gaya kognitif *field independent* mempengaruhi kemampuan auditor memprediksi *fraud* yang lebih tinggi dibandingkan gaya *field dependent*. Berbeda dengan studi Pincus (1990) tersebut, hasil studi Bernardi (2003) menunjukkan hasil bahwa tidak terdapat perbedaan tingkatan kemampuan auditor dalam memprediksi *fraud* baik gaya kognitif *field independent* maupun *field dependent*. Hasil pengujian Fuller dan Kaplan (2004) menunjukkan bahwa gaya kognitifsecara signifikan berinteraksi dengan karakteristik jenis tugas. Analitik auditor berkinerja lebih baik pada jenis tugas analitis dibandingkan jenis tugas intuitif. Intuitif auditor berkinerjalebih baik pada jenis tugas intuitive dibandingkan jenis tugas analitis.

Penelitian akuntansi yang menguji pengaruh gaya kognitif *field independent/field dependent* (FI/FD) terhadap keputusan akuntan, hasilnya tidak mampu menunjukkan adanya pengaruh yang signifikan (misalnya, Lusk 1973, 1979; Benbasat dan Dexter 1979, 1982). Berbeda dengan hasil penelitian Pincus (1990) yang menguji pengaruh FI/FD terhadap *judgment* audit menemukan bahwa gaya kognitif tersebut secara signifikan mempengaruhi presentasi keadilan keputusan auditor. Penelitian selanjutnya dilakukan oleh Bernardi (1994) dengan penelitian yang serupa dengan Pincus's dan menemukan bahwa FD/FI tidak berpengaruh signifikan terhadap presentasi keadilan keputusan auditor. Mills (1996) menguji gaya kognitif

FD/FI terhadap keputusan auditor berkaitan dengan fungsi internal audit. Hasilnya konsisten dengan studi Bernardi's tetapi tidak konsisten dengan hasil Pincus's. Dengan kata lain gaya kognitif FD/FI tidak berpengaruh signifikan terhadap hasil keputusan auditor.

Penelitian Lusk (1973) menguji apakah bentuk dari *annual report* mempengaruhi keputusan pemilihan investasi oleh pengguna annual report dalam rangka memilih investasi. *Annual report* yang dijadikan sampel berasal dari 24 perusahaan yang terdaftar di NYSE. *Annual report* ini diklasifikasikan menjadi dua kelompok yaitu *high analytic* atau *low analytic*. Pemilihan investasi yang dilakukan oleh pengguna *annual report* didasarkan pada proses pemilihan investasi terkait dengan perbedaan persepsi dan intelektual pengambil keputusan. Penelitian ini mengklasifikasikan persepsi tersebut dengan gaya kognitif *field independent-field dependent*. Sampel yang dijadikan partisipan adalah 87 siswa yang dibentukmenjadi dua kelompok (*field independent-field dependent*). Hasil pengujian hipotesis relatif dan wawancara akhir pengujian mengindikasikan bahwa bentuk *annual report* mempengaruhi keputusan pemilihan investasi. Preferensi keputusan tersebut terkait dengan persepsi partisipan (*field independent-field dependent*). Individu yang *field independent* menunjukkan kemampuan untuk memahami inti konteks yang tersembunyi, memilih investasi yang disajikan dengan relatif berbeda, tidak umum, mampu mengartikulasikan bentuk *annual report*. Sementara individu yang *field dependent* tidak mampu menangkap inti dari konteks yang tersembunyi, memilih investasi yang disajikan secara umum dan tidak mampu mengartikulasikan *annual report*.

Benbasat dan Dexter (1979) melakukan pengujian eksperimental pada pengaruh pendekatan akuntansi dan tipe psikologi terhadap perilaku penggunaan informasi oleh pembuat keputusan. Pendekatan akuntansi dikategorikan pada pendekatan *'value'* dan '*event*'. Sementara tipe psikologi dikategorikan sebagai '*high analytics'* dan '*low analytics*'. Pengukuran terhadap tipe psikologi menggunakan *The Embedded Figures Test* (Withkin *et al.,* 1971). Subjek dalam

penelitian ini berjumlah 48 orang yang terdiri dari 24 orang mahasiswa akuntansi, 20 orang mahasiswa bisnis administrasi dan 4 orang akuntan profesional. Dalam hal ini tipe psikologi mengarah pada kategori *field independent/dependent.* Pengujian dilakukan pada kasus pengendalian persediaan dan skedul produksi. Hasilnya menunjukkan bahwa pendekatan akuntansi dan tipe psikologi secara simultan mempengaruhi perilaku pembuat keputusan.

Studi yang dilakukan oleh Lusk (1979) menguji keefektifan desain sistem informasi dengan menggunakan teori *Human Information Processing* (HIP). Penelitian ini menginvestigasi perbedaan dan pemrosesan informasi terhadap perbedaan kinerja yang menonjol untuk tugas-tugas spesifik yang memerlukan informasi yang relevan. Perbedaan individual diklasifikasikan *field independent-field dependent* yang diukur melalui *embedded figure test.* Hasilnya menunjukkan adanya perbedaan yang signifikan antara kinerja yang dicapai oleh kelompok dengan perbedaan gaya kognitif.

Penelitian selanjutnya yang dilakukan oleh Benbasat dan Dexter (1982) menguji apakan *desicion aids* (alat bantu pengambilan keputusan) mampu meningkatkan kinerja dari gaya kognitif *low analytics* (*field dependent)* pada lingkungan penugasan yang kurang sesuai dengan gaya kognitif mereka. Pengujian menggunakan kasus lingkungan pengendalian persediaan dan skedul produksi yang lebih cocok untuk gaya kognitif *high analytics (field independent).* Partisipan adalah 61 siswa jurusan bisnis administrasi. Hasilnya menunjukkan bahwa partisipan yang *high analytics* berkinerja lebih baik dengan atau tanpa *decision aid,* sedangkan partisipan dengan gaya *low analytics* akan mencapai kinerja yang lebih tinggi jika menggunakan alat bantu pengambilan keputusan (*decision aids).* Dengan demikian, desain sistem informasi yang tepat dapat membantu menyesuaikan antara lingkungan tugas dengan tipe psikologis seseorang.

Penelitian Vaassen *et al.* (1993) menguji peran gaya kognitif pada praktisi auditor di Netherlands. Studi ini menggunakan dua instrumen psikometrik yaitu the *Myers-Briggs Type*

Indicator (MBTI) dan *the MacDonald AT-20 Tolerance* untuk instrumen pengujian ambiguitas. Gaya kognitif yang diuji dalam penelitian ini adalah *sensing; intuition, thinking* dan *feeling*. Subjek adalah 25 auditor dari tiga perusahaan audit di Netherlands. Subjek disajikan kasus audit dan diminta untuk memberi keputusan terkait materialitas. Informasi dalam bentuk laporan keuangan dan informasi keuangan lainnya disajikan melalui program komputerisasi. Subjek memilih informasi yang mereka inginkan melalui pilihan item pada menu. Selanjutnya mereka memilih informasi dan jumlah waktu yang dihabiskan untuk melihat masing-masing halaman informasi yang dicatat pada program komputer. Setelah subjek menyelesaikan kasus, mereka diminta untuk menyelesaikan dua instrumen mengenai gaya kognitif (MBTI dan AT-20). Hasilnya mengindikasikan bahwa freferensi subjek cenderung *'sensing'* ketika diukur melalui MBTI. Hasil ini konsisten dengan riset-riset sebelumnya yang menyatakan bahwa kebanyakan akuntan dan auditor umumnya memiliki preferensi tipe *'sensing'* dalam mengelola informasi.

Penelitian Bernardi (1994) menguji pengaruh integritas klien, kompetensi dan gaya kognitif auditor dalam mendeteksi *fraud*. Studi ini didukung oleh perusahaan audit Big 6 dengan 152 manager dan 342 seniors. Kasus yang digunakan melibatkan sebuah restoran klien yang tingkat materialitasnya *overstated* pada persediaan akhir. Subjek ditempatkan secara acak pada tiga kelompok untuk integritas klien dan manipulasi kompetensi (*high, low* dan *control*). Studi ini menguji tiga kategori gaya kognitif yaitu *field independent, field dependent* dan *locus of control.* Hasil penelitian ini memberikan tiga penemuan penting untukpraktek dan teori auditing. Pertama, integritas klien dan kompetensi tidak mempengaruhi kemampuan auditor dalam mendeteksi *fraud* kecuali untuk auditor dengan tingkat moral yangtinggi pada level manager. Kedua, manager lebih tinggi kinerjanya dibandingkan seniors tetapi perbedaan ini dimoderasi oleh tingkat moral auditor manager. Oleh karena itu, managerdengan moral yang tinggi mampu mendeteksi *fraud* pada tingkat yang tinggi. Ketiga, riset ini memvalidasi penelitian Pincus (1990) yaitu deteksi *fraud* meningkat secara langsung dengan keyakinan awal auditor mengenai

terjadinya *fraud*.

Penelitian Mills (1996) menguji pengaruh gaya kognitif pada keputusan eksternal auditor mengenai kepercayaan pada fungsi internal audit. Partisipan adalah 51 auditor dari dua perusahaan audit Big 6. Studi eksperimen menggunakan kasus dimana mereka ditugaskan jam audit untuk suatu hipotetis berkaitan dengan fungsi internal audit klien yang mengindikasikan tingkat kepercayaan. Auditor diberikan program audit utang atau aktivitas deposit tergantung pada apakah keahlian mereka dalam bidang manufaktur atau industri. Gaya kognitif yang diukur adalah *field independent*/ *field dependent* (FI/FD) dan *mobility-fixity*, yang dihipotesiskan mempengaruhi keputusan tingkat kepercayaan auditor (*auditors' reliance*). Hasilnya menunjukkan FI/FD tidak signifikan mempengaruhi keputusan auditor. *Mobility-fixity* berpengaruh signifikan pada kepercayaan auditor dan pada tingkat konsensus diantara auditor.

Penelitian Cheng *et al.* (2003) menguji bagaimana diversitas gaya kognitif mempengaruhi kualitas keputusan yang dihasilkan oleh pasangan gaya kognitif pada penugasan yang komplek. Metode eksperimen dikembangkan dengan menguji perbedaan gaya kognitif berdasarkan dimensi sensor/intuitif. Pengukuran menggunakan instrumen MBTI (*Myer Briggs Type Indicator*). Subjek adalah 271 mahasiswa tahun ketiga kelas akuntansi manajemen. Kasus melibatkan serangkaian tugas mengenai simulasi keputusan produksi dengan *feedback* kinerja *nonfinancial*. Setelah mengontrol konfik tugas, hasilnya menunjukkan kinerja yang signifikan lebih baik ditunjukkan oleh kinerja pasangan yang berbeda gaya kognitif (*sensor* dan *intuitive*) dibandingkan pasangan dengan gaya kognitif yang sama yaitu sensor. Konflik tugas tidak signifikan dalam menjelaskan perbedaan kinerja. Hasil ini berimplikasi dalam mendesain *management control system* dan *personel management*.

Penelitian Chenhall (2004) menguji konflik peran dalam implementasi *Activity-Based Cost Management* (ABCM). Hal ini didasari oleh perhatian untuk mengimplementasikan ABCM

meningkatkan konflik kognitif yang kemudian dihubungkan dengan kesuksesan aplikasi ABCM khususnya kemanfaatan ABCM untuk perencanaan produk dan manajemen biaya. Kurangnya perhatian pada faktor-faktor ini menghasilkan konflik afektif yang dihubungkan dengan kekurangsuksesan aplikasi ABCM. Hasil dari studi terhadap 56 manager mengindikasikan bahwa konflik kognitif mengintervening antara faktor-faktor perilaku implementasi ABCM dengan hasil yang menguntungkan. Namun demikian, terdapat hubungan yang signifikan antara konflik afektif dengan hasil yang menguntungkan, tidak terdapat hubungan yang signifikan antara faktor-faktor perilaku implementasi dan konflik afektif.

Penelitian Fuller dan kaplan (2004) menguji peran *"cognitive misfit"* terhadap kinerja auditor. *Cogntive misfit* merupakan kekurangsesuaian antara gaya kognitif dengan karakteristik tugas auditor. Gaya kognitif yang diukur dalam penelitian ini adalah *intuitive*, *analytic* atau *hybrid*. Partisipan adalah 44 auditor senior pada perusahaan akuntan publik. Partisipan diminta untuk melakukan dua *judgment* tugas dan menyelesaikan pertanyaan gaya kognitif. Pengujian untuk interaksi dilakukan untuk menguji interaksi antara tipe tugas dengan gaya kognitif terhadap kinerja auditor. Hasilnya menunjukkan gaya kognitif auditor secara signifikan berinteraksi dengan tipe penugasan. Auditor yang analitik berkinerja lebih tinggi pada jenis penugasan analitis dibandingkan tugas intuitif. Sementara auditor yang intuitif berkinerja lebih tinggi pada jenis penugasan intuitif dibandingkan jenis analitis.

Penelitian Bryant *et al.* (2009) menguji pengaruh gaya kognitif dan tipe umpan balik (*feedback*) terhadap kemampuan auditor internal untuk mengidentifikasi dan mendokumentasi informasi audit melalui *Internal Control Questionnaires* (ICQ). Partisipan adalah 183 mahasiswa akuntansi tingkat atas dari dua perguruan tinggi di US sebagai proksi staff auditor pemula tanpa pengalaman. Gaya kognitif diklasifikasikan sebagai '*sensor'* dan *'intuitive'*. Melalui metode eksperimen, partisipan menggunakan ICQ untuk mengidentifikasi *internal*

control untuk satu siklus akuntansi. Setelah menerima berbagai jenis umpan balik, partisipan mengulang kembali identifikasi internal control untuk siklus akuntansi yang kedua.Hasilnya menunjukkan hal yang bertentangan dengan ekspektasi peneliti. Gaya kognitif secara signifikan tidak mempengaruhi kinerja dengan atau tanpa umpan balik. Namun demikian, seperti yang diharapkan, hubungan yang signifikan antara gaya kognitif dan kinerja tugas pasca-umpan balik ditemukan, dengan kombinasi gaya kognitif dan hasil umpan balik menghasilkan peningkatan kinerja positif. Penelitian Emsley dan Chung (2010) menguji bagaimana gaya kognitif akuntan manajemen dan keterlibatan peran mereka untuk mempengaruhi perubahan radikal dalam praktik akuntansi manajemen. Gaya kognitif akuntan manajemen menjadi indikator penting dalam upaya melakukan perubahan. Hal ini karena peran mereka dalam organisasi dan sebagai sarana yang dapat memfasilitasi perubahan tersebut. Gaya kognitif diklasifikasikan sebagai *Adaptor-Innovator.* Sampel adalah 56 akuntan manajemen dan 40 kuisioner yang kembali, sehingga respon rate adalah 71% dan seluruhnya dapat diolah. Hasilnyamenunjukkan bahwa gaya kognitif memiliki pengaruh positif tetapi tidak signifikan pada level usaha akuntan manajemen untuk melakukan perubahan. Namun demikian sebagaimana dihipotesiskan, terdapat pengaruh tidak langsung yang signifikan melalui variable mediasi keterlibatan peran. Selain itu, hubungan tidak langsung ini lebih berarti untuk perubahan radikal dari perubahan non-radikal.

Penelitian Jones dan Wright (2010) menguji kombinasi gaya kognitif dan pengguna atau non pengguna dari dua jenis *hypertext learning aid* (alat bantubelajarhypertext) dan interaksi keduanya pada kinerja siswa di akuntansi keuangan lanjutan. Gaya kognitif yang diuji adalah *field independent-field dependent* (FI/FD). Total partisipan sejumlah 107 siswa akuntansi tingkat empat. Satu dari tiga siswa tidak menggunakan alat bantu belajar sama sekali, satu tidak menggunakan versi dasar dari alat bantu belajar (hanya solusi yang diberikan), dan satu dari tiga menggunakan versi pengembangan dari alat bantu belajar (diberikan solusi dan turunan dari

solusi tersebut). Hasilnya menunjukkan bahwa untuk pertanyaan ujian yang familiar, hanya bantuan belajar yang berpengaruh signifikan, dan untuk ujian yang tidak familiar, alat bantu belajar, gaya kognitif dan interaksi keduanya berpengaruh signifikan. Untuk kedua tipe pertanyaan/ujian, kinerja berbeda berdasarkan gaya kognitif. Hasil ini menyarankan bahwa pendidik seharusnya hati-hati dalam mendesain dan menggunakan alat bantu belajar.

Penelitian Jones dan Wright (2012) menginvestigasi pengaruh gaya kognitif (*field dependence*) terhadap kinerja pada pertanyaan-pertanyaan ujian yang berbeda dalam kontek familiaritas dan tingkat struktur. Gaya kognitif yang diuji adalah *field independent-field dependent* (FI/FD). Partisipan yang terlibat adalah 160 siswa pada kelas akuntansi keuangan menengah. Penelitian ini menemukan bahwa kinerja siswa yang *field independent* tinggi pada penyelesaian pertanyaan yang tidak familiar dibandingkan siswa yang *field dependent*. Tidak ada kelebihan yang signifikan untuk siswa yang *field dependent* ketika menyelesaikan pertanyaan-pertanyaan yang familiar. Untuk pertanyaan-pertanyaan yang tidak terstruktur, hasil penelitian ini menunjukkan tidak terdapat perbedaan yang signifikan antara kinerja siswa yang *field dependent* dengan *field dependent*. Sementara untuk pertanyaan-pertanyaan yang terstruktur, hasil penelitian menunjukkan bahwa kinerja siswa *field independent* lebih baik dibandingkan siswa *field dependent*. Hasil penelitian ini membantu pendidik untuk memahami peran gaya kognitif terhadap kemampuan siswa untuk fungsi familiaritas dan sebagai rekomendasi bagi *The Accounting Education Change Commission.*

Tabel 2.2 menyajikan ringkasan hasil penelitian yang berkaitan dengan gaya kognitif pada bidang akuntansi.

Tabel 2.2
Hasil Penelitian Tentang Gaya Kognitif
Di Bidang Akuntansi

No.	Studi	Jenis perlakuan Gaya Kognitif	Subjek &domain penugasan	Hasil
1.	Lusk (1973)	*Low analytics* (*field dependent*) dan*high analytics* (*field independent*).	87 siswa; Annual report form; keputusan pemilihan investasi	Individu yang *field independent* menunjukkan kemampuan untuk memahami inti konteks yang tersembunyi, memilih investasi yang disajikan dengan relatif berbeda, tidak umum, mampu mengartikulasikan bentuk annual report. Sedangkan individu yang *field dependent* tidak mampu menangkap inti dari konteks yang tersembunyi, memilih investasi yang disajikan secara umum dan tidak mampu mengartikulasikan.
2.	Benbasat dan Dexter (1979)	*Low analytics* (*field dependent*) dan*high analytics* (*field independent*).	48 orang; Perilaku penggunaan informasi *'value'* dan '*event*'	Hasilnya menunjukkan bahwa pendekatan akuntansi dan tipe psikologi secara simultan mempengaruhi perilaku pembuat keputusan.
3.	Lusk (1979)	*Field dependent* (FI); *Field independent* (FD).	403 mahasiswa; EFT; desain sistem informasi	Hasilnya menunjukkan adanya perbedaan yang signifikan antara kinerja yang dicapai oleh kelompok dengan perbedaan gaya kognitif.
4.	Benbasat dan Dexter (1982)	*Low analytics* (*field dependent*) dan*high analytics* (*field independent*).	61 siswa; Desicion Support Aids	Siswa yang high analytics berkinerja lebih baik dengan atau tanpa decision aid, sedangkan siswa dengan tipe low analytics akan mencapai kinerja yang lebih tinggi jika menggunakan alat bantu pengambilan keputusan (*decision aids*).
5.	Pincus (1990)	*Field dependent* (FI); *Field independent* (FD).	Auditor; Keadilan keputusan	Gaya kognitif secara signifikan mempengaruhipresentasi keadilan keputusan auditor
6.	Vaassen, Baker dan Hayes (1993)	*Sensing; Intuition; Thinking; Feeling*	25 auditor; Keputusan materialitas	Freferensi subjek cenderung *'sensing'* ketika diukur melalui MBTI. Konsisten dengan riset-riset bahwa kebanyakan akuntan dan auditor umumnya memiliki preferensi *'sensing'* dalam mengelola informasi.

7.	Bernardi(1994)	*Field dependent* (FI); *Field independent* (FD); *Locus of Control*.	152 managerdan 342 seniors;*fraud* detection.	Integritas klien dan kompetensi tidak mempengaruhi kemampuan auditor mendeteksi *fraud* kecuali untuk tingkat moral yang tinggi pada level managers. Manager lebih tinggi kinerjanya dibandingkan seniors, manager dengan moral tinggi mampu mendeteksi *fraud* lebih tinggi. Deteksi *fraud* meningkat secara langsung dengan keyakinan awal auditor mengenai terjadinya *fraud*.
8.	Mills (1996)	*Field dependent (FI); Field independent (FD); Mobility; Fixity.*	51 auditor; Internal Audit Functions (IAF); Account payable; deposit activities.	FD/FI tidak signifikan mempengaruhi keputusan auditor. *Mobility-fixity* berpengaruh signifikan pada kepercayaan auditor dan pada tingkat konsensus diantara auditor.
9.	Cheng; Lucket dan Schulz (2003)	*Sensor; Intuive*	271 mahasiswa; MBTI; keputusan produksi; feedback.	Kinerja yang tinggi padapasangan yang berbeda tipe kognitif (sensor dan intuitive) dibandingkan pasangan sensor. Konflik tugas tidak signifikan dalam menjelaskan perbedaan kinerja.
10.	Chenhall(2004)	*Cognitive conflict; Affective conflict.*	56 manager; *Activity-Based Cost Management* (ABCM)	Konflik kognitif mengintervening faktor-faktor perilaku implementasi ABCM. Terdapat hubungan signifikan antara konflik afektif dgn hasil yang menguntungkan. Tidak terdapat hubungan signifikan antara faktor perilaku implementasi& konflik afektif.
11.	Fuller dan Kaplan (2004)	*Intuitive; analytic; hybrid.*	44 auditor senior; *cognitive misfit;* tipe tugas	Gaya kognitif auditor signifikan berinteraksi dgn tipe penugasan. Auditor analitik berkinerja lebih tinggi pada penugasan analitis. Auditor intuitive berkinerja lebih tinggi pada jenis penugasan *intuitive*.
12.	Bryant, Murthy dan Wheeler (2009)	*Sensor; intuitive*	183 mahasiswa akuntansi; *Internal Control Questionnaires* (ICQ); *feedback*	Gaya kognitif signifikan tidak mempengaruhi kinerja dengan atau tanpa umpan balik. Hubungan signifikan antara gaya kognitif dan kinerja tugas pasca-umpan balik ditemukan, dengan kombinasi gaya kognitif dan hasil umpan balik menghasilkan kinerja positif.

13.	Emsley dan Chung (2010)	*Adaptor-Innovator.*	56 akuntan manajemen; *Role Involvement; Effort Devotedto InitiatingChange*	Gayakognitif berpengaruh positif tidak signifikan pada level usaha akuntan untuk melakukan perubahan. Terdapat pengaruh tidak langsung melalui variable mediasi keterlibatan peran. Hubungan tidak langsung tersebut berarti untuk perubahan radikal.
14.	Jones dan Wright (2010)	*Field dependent* (FI); *Field independent* (FD).	107 siswa akuntansi tingkat empat; hypertext learning aid; familiar and unfamiliar accounting questions.	Pada pertanyaan ***familiar,*** hanya bantuan belajar yang berpengaruh signifikan, sedangkan ***Unfamiliar***, alat bantu belajar, gaya kognitif & interaksi berpengaruh signifikan. Untuk kedua tipe kinerja berbeda berdasarkan gaya kognitif.
15.	Jones dan Wright (2012)	*Field dependent* (FI); *Field independent* (FD).	16 siswa inter financial accounting; structured& unstructured; familiar & unfamiliar questions.	Pertanyaan ***Unfamiliar,*** kinerja FI lebih tinggi dibandingkan FD sedangkan ***familiar,*** tidak ada keuntungan signifikan untuk FD. Pertanyaan ***Unstructured***, tidak terdapat perbedaan, ***Structured*** kinerja FI lebih baik dibandingkan FD.

2.3. Model Pengukuran Gaya Kognitif *Field Dependence*

Alat yang dapat digunakan untuk mengukur atau menguji kognitif *field dependence* adalah *The Group Embedded Figures Test* (GEFT) yang dikembangkan oleh Witkin *et al.*(1971). Instrumen GEFT dianggap sebagai salah satu model yang lebih mapan dan banyak diteliti dan terus digunakan dalam bidang akuntansi (Bernardi2003) dan bidang lainnya. Tes GEFT tersebut merupakan cara untuk menemukan figur sederhana dalam figur yang lebih lebih kompleks yang didesain sedemikian rupa dengan memasukkan atau menyembunyikan figur sederhana. Kemampuan untuk menemukan figur sederhana dalam figur yang kompleks mencerminkan kemampuan untuk memecahkan masalah kognitif dengan mengisolasi elemen kritis dan menggunakannya dalam konteks yang berbeda(Leader dan Klein 1996 dalam Jones and Wright 2010). Individu yang mampu mengabaikan lingkungan kompleks dan kemudian mampu "melihat" figur sederhana didalamnya diklasifikasikan sebagai *field independent* sedangkan mereka yang memiliki kesulitan dalam menemukan figur yang sederhana diklasifikasikan sebagai *field dependent*.

Pengujian terhadap gaya kognitif *field independent/dependent* menggunakan *The Group Embedded Figure Test* (Witkin *et al.* 1971) yang mengukur kemampuan individu untuk mengenali *embedded figure* dalam bentuk yang lebih besar dan komplek. Seseorang akan dikatakan independen jika mampu mengidentifikasi *embedded figure* lebih banyak. Oleh karena auditor harus mengevaluasi informasi yang kompleks dan mengidentifikasi masalah tertanam dalam konteks lingkungan secara keseluruhan, kemandirian lapangan bisa menjadi karakteristik penting dalam audit. Seseorang yang independen lebih efisien dalam membangun kesimpulan dan lebih baik dalam pemecahan masalah (Bennink dan Spoelstra 1979) dan pengambilan keputusan

(Benbasat dan Dexter1982). Pincus (1990) menemukan bahwa auditor yang independen mendeteksi penipuan dengan tingkat yang lebih tinggi.

Ukuran *embedded figures test* tersebut menuai banyak kritik yang mengemukakan bahwa ukuran tersebut hanya menilai kemampuan kognitif atau kemampuan spasial tetapi bukan mengukur gaya kognitif. Kemampuan adalah kompetensi sedangkan gaya adalah model pemrosesan. Jones dan Wright (2010) yang berpendapat bahwa *field dependence* adalah kemampuan dan gaya dengan mengemukakan bahwa *field dependence* merupakan fitur yang menarik yang kadang-kadang bertindak sebagai kemampuan dan kadang-kadang sebagai gaya. Untuk mendukung dari perspektif kemampuan uji *field dependence* merupakan uji kemampuan (Witkin *et al*. 1977), dan juga berkorelasi dengan tes kemampuan lainnya.

BAB III

Penelitian Empiris di Indonesia

Pada bab ini menyajikan beberapa hasil penelitian empiris yang telah dilakukan oleh tim penulis terkait dengan topik gaya kognitif. Tujuan penyajian ini adalah untuk memberikan wacana yang lebih jelas tentang bagaimana proses penelitian dilakukan. Dengan memahami penelitian ini diharapkan pembaca mampu memahami fenomena, teori yang digunakan, metode, hasil, pembahasan dan kesimpulan serta kontribusi/implikasi atas hasil penelitian. Dengan demikian pembaca dapat mengembangkan lebih jauh hasil penelitian ini untuk kebutuhan pengembangan riset dan teoritis bagi bidang keilmuan akuntansi keperilakuan.

3.1. Do Cognitive Style and Fairness Affect Accounting Students' Performance?

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ABSTRACT

This study examines the effect of cognitive style and fairness on individual performance in nonparticipative budgeting based on referent cognitions theory. This study shows the importance for organizations to understand and manage the level of justice and cognitive style ofindividuals in order to allocate organizational resources and improve individual performance. The 2x2-experimental design between subjects was used to test the hypotheses. Budget targets were manipulated by two levels of fair budget target and unfair target budget; while the cognitive style was manipulated by two levels as a field independent and field dependent. The participants were 88 undergraduates accounting students from the executive class of the Accounting Program. ANOVA's two-way analysis was used to test the hypotheses. The results show that performance is lower when unfair budget targets are compared with a fair budget target set. If the budget target is set fair, there is no significant difference between individual performance with cognitive style both field independent and field dependent. When unfair budget targets are set, individual performance with field independent is higher than the field dependent.

Keywords: Fairness, Referent Cognitions, Field Independence, Performance.

INTRODUCTION

The budget used in decentralized organizations has three main objectives: communicating strategic plans to organizational divisions, coordinating activities between divisions and motivating and evaluating the performance of divisional managers (Merchan, 1998). Budgets canbe motivated if associated with a performance appraisal system and organizational compensation(Hopwood, 1972). Budget becomes a target that must be met in order for employees to get positive results, including bonus payments and promotions.

The organization hopes that the budget that has been set can be achieved by employees. Theory and empirical evidence suggests that the impact of motivation from budget targets partly depends on individual perceptions of two factors: the fairness of the established budget targets and the fairness of the budgeting process used (Libby, 1999; Wetzel, 1999; Lindquist, 1995). In the scenario of achieving budget targets, this study uses information on achieving budget targets presented in form of symbols. Participants are asked to learn and remember the symbols according to the target budget to be achieved. Thus, cognitive ability is required for participants to manage information and solve problems in experimental scenarios. This ability is known as cognitive style.

Differences in cognitive style in the field of dependence have been shown to be extended to various intellectual domains. Individuals who are field independent (FI) tend to be analytical, able to define their own information structure and have an impersonal orientation. In contrast, individuals with field dependent (FD) style understand globally, adhere to structures as they areand have a social orientation (Adams, 1965).

Gul's (1984) results in the field of accounting show that FD individuals are more confident than FI students in judgment when dealing with ambiguous information. Lusk (1973) found that FI individuals showed higher cognitive abilities in analysing annual reports. Davis andCochran (1989) argued that where the quantity of information to be processed is still small, there is little difference in performance between the subjects of FI and FD, but if the information hasto be analysed or integrated is large, the performance of FI individuals is more accurate and efficient. Furthermore, Bernardi (2003) study showed that FI individuals have greater analytical abilities than FD individuals. Davis & Cochran (1989) studies also showed that students with FI cognitive styles reflect a higher level of achievement than FD students. However, different results are found by Neimark (1981) who argued that individuals who are field dependent lack the skills to handle unstructured tasks and ambiguous instructions.

The purpose of this paper is to know how the interaction between perception of fairness and cognitive style of FI/FD in achieving budget target is. Subjects perform production simulation tasks based on budget-based incentive contracts. The observed variable is the performance of the subjects on the experimental task. By the experimental method, fairness budget targets are manipulated at a level that is attainability (fair) and unattainability (unfair); while the cognitive style is manipulated by two levels of independent field (FI) and fielddependent (FD).

This research is very important considering the achievement of one's performance can be determined by individual characteristics inherent in a person. This characteristic consists of one's cognitive and one-sided style. It is thus important for organizations to understand and manage the level of equity in allocating organizational resources. It is also important to understand the cognitive style of individuals in order to improve individual performance.

The results show as predicted by referent cognition theory. Performance is lower when budget targets are unfair than using fair budget targets. When budget targets are set fair, performance does not differ significantly either from individuals with FI or FD cognitive styles.If

the budget target is unfairly determined, the individual's performance with FI is higher than that of the FD (Phillips, 1998).

These results contribute to the central manager as a decision maker. When makingresource allocation decisions within an organization, they must balance the needs of division managers with the organization as a whole. Division managers cannot always be allocated the amount of resources they want. It is thus interesting to consider how the central manager can handle the allocation process without lowering the motivation of the division manager when budget allocations differ from the amount they want.

THEORY AND HYPOTHESES DEVELOPMENT

Referent Cognition Theory

Referent cognition theory (RCT) was developed in the 1980s. The RCT argued that "*people's reactions to procedural and distributive justice depend heavily on their counter-factual thinking"* (Kahneman & Tversky, 1982). In essence, RCT reasoned that when distributive or procedural rules are broken down, people's thinking becomes highly referential. Someone uses a frame of reference to evaluate what happens which consists of mental comparison with what might happen (Cropanzano & Folger, 1989; Folger, 1986, 1987, 1993; Folger & Cropanzano, 1998, 2001; Folger & Kass, 2000).

Fairness

Bazerman (1994) stated that humans really pay attention to fairness that can affect their decisions and lives. Every single thing will lead to an individual's judgment on what is thought about this fairness. Fairness refers to an understanding of how cognitive processes shape anger, jealousy, and inefficiency. Fairness can be seen from two elements: the result and the process. Kahneman et al. (1986) tested fairness on the experimental setting of supply and demand. The study showed that fairness considerations can dominate rational choice in making economic decisions.

Martin's study (2016) examines the role of internal locus of control and consistent standards on perceptions of procedural justice, predicting organizational commitment and perceived learning in a multiple-supervisor environment. The results show that consistent standards among supervisors are significantly related to procedural fairness perceptions in a unique multiple-to-one performance appraisal environment. In addition, the internal locus of control will be significantly related to procedural fairness perceptions in many-to-one audit environments (Merchant, 1998).

Lane et al. (2017) tested the fairness of the manager's performance measurement setting with the balance scorecard (BSC). The results show that perception of fairness is one of the determinants of effectiveness of the balanced scorecard (BSC). Lindquist (1995) suggested that afair process is defined through subordinate participation in fixation of budget targets and other varied outcomes including budget performance and looseness.

Brockner & Wiesenfeld (1996) reviewed 45 studies of individual reactions to resource allocation decisions. They studied the relationship between the perceptions of equity resulting from the allocation process, the equity of the allocation process itself, and the various psychological outcomes including organizational commitment, trust, intention to turnover, and job satisfaction. Their study showed a strong interactive effect that is consistent with the predicted referent cognition theory. Bazerman (1994) argued that "*fairness can be observed by comparing the results received with expected results. Another way is to compare the results we receive with those received by the others alike (referral)"*.

According to the referent cognition theory, "*when individuals receive unfair results, they will inherently refer to the assessment"* (Folger, 1986). That is, individuals make comparisons between the results they receive and the results that have been received by others equivalent, given their input relative to the input of others (Adam, 1965). If the results refer to the inequalities between the results individuals receive and the outcomes they are supposed toreceive than others, it will produce feelings of resentment.

The current study examines the prediction of referent cognition theory in the context of accounting using budget-based incentive contracts. In this determination, the results of the allocation process are defined as budget targets assigned to subordinates and the elective process refers to the process used in determining the target budget to be assigned. Lindquist (1995) also examined the results of budget targets and budgeting that are just and unfair from the perspective of referent cognition theory. This study predicted the combination of voice and subordinate voice in the budgeting process will result in higherperformance than one's own voice, self-voting, or no input when a fair budget target is received. Secondly, Lindquist (1995) predicted that "*one's own voice will result in higher performance than voice plus voice or voice only when budget targets are unfairly accepted"*. These results failto support the prediction of the main or interactive effects of the fairness of the budget targets and the shape of budget participation on performance.

To complement the referent cognition theory, alternative views are provided by goal theory. If goals are not achieved, the goal theory predicts that they will not be accepted by their subordinates (Locke, 1982). Consequently, unattainable goals will have no effect on subordinates, or, more likely, give demotivating effects and result in performance degradation (Locke, 1982). Based on the goal theory, if the budget target is not fair (unreachable), performance becomes lower than when the target budget is fair (can be achieved). This leads to the following hypothesis:

H1: Performance will be lower if budget targets are set unfairly compared to when they are set fairly.

Cognitive Style

According to Chen & Macredie (2002), cognitive style is an individual choice and a habitual approach to organizing and representing information. One form of cognitive style is field dependence consisting of field independent and field dependent (Hicks et al., 2007; Bernardi, 2003; Awasthi and Pratt, 1990; Gul, 1990; Gul, 1984). Individuals who are field dependent will have the perception and processing of information that is influenced by the contextual field in which they operate. The field dependent depends on the external reference frame, while the field independent depends on the internal frame of reference. Individuals who are field dependent focus on the most prominent features presented to them (Goodenough, 1976).The study of Davis & Cochran (1989) suggested that there is little difference in performance when the amount of information to be processed is still small; however, when the information to be analyzed or integrated is large, the performance of field independent individual becomes moreaccurate and efficient.

Davis & Frank's (1979) study showed that field independent learners can better recall word lists than field dependent learners when lists are made with more difficult organizational patterns (Davis & Cochran, 1989). In addition, field independent students are better at studying and remembering textual information that has high structural importance (Davis & Cochran, 1989). Leader and Klein (1996) suggested that field dependence involves perceptual ability and problem solving.

Accounting studies that tested the influence of independent / field dependent cognitive style (FI/FD) styles on accountant decisions, the results were not able to show any significant influence (eg Lusk 1973, 1979; Benbasat and Dexter 1979, 1982). In contrast to the results of the Pincus (1990) study that examined the effect of FI/FD on judgment audit found that the cognitive style significantly affected the presentation of fairness of the auditor's decision. Further research was conducted by Bernardi (1994) with a similar study with Pincus's and found that FD/FI had no significant effect on the fairness presentation of the auditor's decision. Mills (1996) tested the FD/FI cognitive style of the auditor's decision with respect to the internal audit function. The results are consistent with Bernardi's study but are not consistent with Pincus's results. In other words, the cognitive style of FD/FI has no significant effect on the result of the auditor's decision.

Jones & Wright's (2010) study examined a combination of cognitive and user or non-userstyles from two types of hypertext learning aids and their interaction with student performance in advanced financial accounting. Cognitive style tested is field independent-field dependent (FI/FD). Total participants of 107 accounting students level four. The results show that for familiar exam questions, only significant learning aids are significant, and for unfamiliar exams, learning aids, cognitive styles and interactions both have a significant effect. For both types of questions/examinations, performance differs based on cognitive style.

Research Jones & Wright (2012) investigated the effect of cognitive force (field dependence) on performance on different exam questions in the context of familiarity andstructure level. Participants involved were 160 students in the middle financial accounting class. This study found that the performance of students who field of independent high on the solution of unfamiliar questions than students who field dependent. There are no significant advantages tostudents who are field dependent when resolving familiar questions. For unstructured questions, the results of this study indicate that there is no significant difference between the performance of the students who are field dependent and field dependent. As for the structured questions, the results showed that the performance of students field independent is better than the students fielddependent.

Witkin et al. (1971) developed the Group Embedded Test (GEFT), which can test the cognitive style of field dependence. It consists of finding simple figures in larger and more complex figures designed to insert or hide simpler figures an ability to find simple figures in complex figures. It also reflects the ability to solve cognitive problems by isolating critical elements and using them in different contexts (Leader & Klein, 1996). Individuals who are able to ignore complex environments and thus "see" simple figures in them are classified as individuals who are field independent, while those who have difficulty in finding simple figures are classified as individuals who are field dependent (Cakan, 2003).

The GEFT instrument is considered to be one of the more established and well- researched models (O'Brien & Wilkinson, 1992) and continues to be used in accounting (Hicks et al., 2007; Bernardi, 2003) and other fields (Sisco & Leventhal, 2007; Chapman & Calhoun, 2006; Liu, 2006; Guillot & Collet, 2004; Chakan, 2003; Chao and Huang, 2003; McMorris et al.,2002; O'Brien et al., 2001; Salbod, 2001; Huang & Chao, 2000). Individuals who are field independent exhibit greater analytical skills than dependent field individuals (Bernardi, 1993), and disciplines such as accounting, engineering, and science tend to attract more independent individuals in the field, while the opposite is found for disciplines such as nursing and art (Hicks et al., 2007). In general, because the existing literature shows that students who are field independent are better than the field dependent students, it is said that field independent students will perform better in advanced financial accounting than students who are field dependent. This leads to the following hypothesis:

H2: Performance of field independent individuals is better than the field dependent individual when the fairbudget target is determined fairly.

H3: Performance of field independent individual is better than the field dependent individual when thebudget target is determined unfairly.

METHOD AND RESULTS

Participants

The participants were the fourth year uundergraduate accounting students in the executive class who were taking the advanced financial accounting courses of Sriwijaya University in Indonesia. The total sample was 88 people (53% male/47% female). The subjects were assigned randomly to experimental conditions. Participation was voluntary. Two successiveexperimental sessions were held. The subjects had no chance to communicate in the experimental session. The experiment session lastedfor 30 minutes (20 minutes to collect data and 10 minutes to complete the consent form).

After the experimental manipulation sessions, the subjects were asked to indicate whetherthe budget target given to them was higher, lower, or equal to the budget given to the others in their group. Five subjects failed to answer this question correctly, indicating that they did not understand the experimental manipulations of the reference targets. The subjects were excluded from the sample size. Thus, only 83 subjects could be used for final data processing.

Experimental Design

The experiment used 2x2-between-subject design with fairness measures based on fair (attainability) budget targets and unfair (unattainability) budget targets, while the cognitive style is manipulated by two levels as field independent (FI) and field dependent (FD). Table 1 shows the cell conditions.

Table 1
EXPERIMENTAL DESIGN 2X2 BETWEEN-SUBJECT

Fairness of Budget Target	**Field Dependency**	
	Field Independent (FI)	Field Dependent (FD)
Attainability (Fair)	A N = 20	B N = 20
Unattainability (Unfair)	C N = 23	D N = 25

Measure

The subjects performed experimental production tasks involving translation symbols to alphabetical letters using translation keys. The subjects were paid based on the number of words translated. Each word consisted of randomly arranged symbols that did not match any actual accounting account. The subjects were given 10 minutes to learn before performing the actual task.

The cognitive styles of FI and FD students were measured through their scores on the filling of GEFT instruments (see apendix). The test instruments were composed of two parts,time constrained, and scored continuously (not by using the average cut off). The researchers printed the completed instruments using the accompanying tagging guidelines. A range of possible scores between 0 and 18 with a higher value indicated a higher field independent rate, and a lower score

indicated a higher field dependent rate. The dependent variable measured was the performance of the subjects on the experimental tasks in the production period after the experimental manipulation had been introduced.

Procedures

Upon entering the room, subjects were randomly seated where they found a map containing experimental materials. The material consisted of three booklets that corresponded to the three parts of the experiment: the period of practice, the period of work, and the questionnaire. Subjects were asked to imagine that they worked for the translation division manager of an accounting book publishing company. The subjects read a descriptive materialand were put into practice of translation work for ten minutes. The subjects were given the key answers they use to statistically adjust the subjects' skills in the assignment in the following analysis.

After completing the first and second tasks, respondents would learn and understood the third task at the core of the experiment. At this stage, they were asked to read the case illustrationby positioning themselves as someone in the case. The given case was manipulated by fairness inthe budget target or budget process. The time given for the third task was 20 minutes.

The experimental text was given in two stages. The first step: each scenario included a preliminary session, which concluded the respondents' self-perception as a member of the accounting translation team at a publishing company. At this stage, respondents were asked to practice translating words that were symbolized as words in Indonesian. The next step, the respondents got a treatment from manipulated conditions. To manipulate performance conditions on a budget basis with incentive contracts, it was illustrated that every member who was able to reach the target of translating words correctly would be given a certain bonus.

RESULT

Manipulation Checks

As a check on the experimental manipulation of fairness of budget targets, the subjects were asked to respond to the statement "The budget target of 10 (20) words given to me is fair" on a scale of 1 (strongly disagree) to 7 (strongly agree). The one-way analysis of variance that compared the fairness ratings of subjects in fair and unjust groups showed significant effect of fair budget targets, (F = 164,872, p = 0,000). Table 2 presents the check manipulations.

Table 2
MANIPULATION CHECK OF FAIRNESS PERCEPTIONS

Fairness Perception	Mean		F- Ratio	p-value
	Fair (Attainability/Equal)	Unfair (Unattainability/Higher)		
Fairness of Budget Target	6.21	3.34	141.737	0.000

Hypothesis Tests

Panel A of table 2 shows descriptive statistics on performance under each experimental condition. Performance is measured by the number of words translated in the experimental task. The ability of a subject is measured by the number of words that have been translated in the practice

session before reading the experimental task with manipulation. Performance in unfair budget targets is lower than fair budget target conditions. This can be seen from the average performance of budget achievements in both FI and FD conditions as described in panel A of Table 2. The average performance values of fair budget targets under FI conditions (18.25) and FD (16.05) are higher than the performance on unfair budget targets in both FI conditions(15.67) and FD (14.13). Thus, the results of this test support Hypothesis 1.

Panel B of Table 2 shows that the performance on a fair budget target determined by an individual who is an field independent is higher than the performance on a fair budget target determined by field dependent conditions. ANOVA test results indicate that fairness in determining the reasonableness of budget targets is significant (F = 67,001; p = 0,000). These results indicate that fairness to the budget target will have a significant impact on performance. The analysis of cognitive style showed F (3.157) and p (0,164). An interesting insight was obtained when comparing subject performance under unfair budget target/field independent conditions with subjects in fair budget target/field dependent conditions: their average performance did not show significant differences. These results indicate that the performance is not different for individuals who are field independent and field dependent when their budget targets are determined fairly. This result does not support Hypothesis 2.

The interaction between the budget target and the cognitive style in panel B of Table 3 shows that the unfair target budget determined by field independent individuals results in a higher performance than the target budget unfair determined by the field dependent individuals. The mean in T able 3 shows that in this condition the mean performance at FD condition (14,13) is lower than FI condition (15,67). The interaction between target fairness budget and cognitive field dependence style is significant (F = 9,311) and p = 0.003). This result supports Hypothesis 3. These results predict that performance is negatively affected if the budget targets are unfair and the individual has cognitive field dependent style.

Table 3
ANALISYS OF VARIANCE RESULT

Panel A: Mean Performance

Budget Target / Budget Process	***Mean***	***Std. dev.***
Attainability / FI (Cell A)	18.25	3.13
Attainability / FD (Cell B)	16.05	2.61
Unattainability / FI (Cell C)	15.67	3.88
Unattainability / FD (cell D)	14.13	3.37

Panel B: ANOVA Result : Performance

Sumber Variasi	***Df***	***F-Ratio***	***p-value***
Fairness of Budget Target	1	67.001	0.000
Field Dependency	1	3.157	0.164
Interaction Term (Budget Target * Field Dependency)	1	9.311	0.003

DISCUSSIONS

Research on the literature of justice suggests that participatory decision making creates a perception of justice. It can motivate subordinate attitudes and behaviors in decentralized organizations. The study described in this paper discusses the effects of fair budget targets and individual cognitive styles on performance. The results are as predicted by referent cognition theory. Individuals who get an unfair budget target allocation result in lower performance than individuals

who get an unfair budget target allocation. In addition, individuals assigned as fair budget targets are equally well regardless of the individual's cognitive style attached to them. Based on the view of the referent cognition theory, motivational effects can be generated not only through involvement in the budgeting process but also as a reaction to communication aboutthe treatment of individuals against others in the working group.

Overall, the results of this study support the proposed hypothesis. We contribute to the literature by developing a fairness testing model using translational symbols of accounting terms. This study supports previous studies showing that individuals with field independent cognitive styles perform better than individual field dependent (Bernardi, 1993, Davis and Cochran, 1989, Jones and Wright's 2010, 2012). In addition, fairness is an important thing that becomes an individual consideration in performing (Libby, 1999; Wetzel, 1999; Lindquist, 1995).

Thus, the results of this study indicate that in the process of budgeting, the organization should consider the element of fairness in the process of setting targets and budgeting procedures. Besides its, understanding the cognitive style of individuals involved in the process of preparing the budget is also an important thing to be considered.

Limitations and Future Research

As in this type of research, some limitations should be considered. First, Van den Bos et al. (1997) suggested that the order of results presentation and process justice information can influence the subject's reaction to it. The author finds that what people perceive to be fair is moreinfluenced by the information received first than the information received in advance of the information received subsequently, regardless of whether it is results-oriented or process- oriented. In the current study, information about the outcome (i.e., budget targets) is consistently given prior to information about the process. Future work in this field should test whethervarying the order in which the target budget presentation and assigned budgeting information affects motivation and performance.

Second, this research gets the influence of justice to motivation indirectly through the change of performance. Future research is needed, perhaps using data collected in the field, to explore variables such as organizational commitment and job satisfaction that may moderate the relationship between fairness in budgeting and performance.

The study of fairness is broad. Future research can explore other aspects of fairness that affect attitudes and behaviour of individuals. These results are very important for managers who contemplate the introduction of stretch targets in their organizations. Stretch targets are defined as unreachable targets given the current operating methods used. Stretch targets will not lead to improved performance unless individuals accept them as personal goals (Chow et al., 2001; Locke, 1982). The rate at which the results described in the current study can generalize to the field settings, especially where the stretching targets introduced provide an interesting path for further research.

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3.2. *The Role of the Supply Chain Management in Responsibility of Indonesian Government Auditors in Detecting Corruptions: Analysis of Cognitive and Moral Effects*

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Abstract- This study tends to examining how a new analytical tool, can be useful to detect the fraudulent activities in Supply Chain Management. This study aims to analyze and provide empirical evidence regarding the perception of the Indonesian government's internal auditors' responsibility in detecting corruption. Thetheory of triangle model of responsibility [29] is used as a reference for analyzing research results. The 2x2 betweenexperimental subjects design was conducted to investigate the research questions. The cognitive style tested is field style independent and field dependent, while the moral of the auditor is divided into high and low levels. The Participants are 92 internal government auditors in Indonesia. Results show that perceptions of responsibility for detecting corruption among groups that are field independent and dependent fields differ significantly. Thus the perception of responsibility for detecting corruption is higher for auditors with independent field cognitive style (FI) than for auditors with field dependent (FD) cognitive styles. Furthermore, the results show that the perception of responsibility for detecting corruption is higher for auditors with a high level of moral development than a low moral development level.

Keywords- *Cognitive Style, Supply Chain Management, Responsibility, Triangle Model of Responsibility.*

1. Introduction

Supply chain management (SCM) is an integrated and complex network concept that refers to the sum of all the processes starting from the procurement of the raw material from the manufacturer/producer and ending with delivery of the end-product to the consumer. This research extends the results of previous studies related to the responsibility of detecting corruption. The results of the research by [1-3] show that the type of corruption and accountability of the Indonesian government's internal auditors influences the perception of responsibility in detecting corruption. This study examines the effect of field independent-dependent cognitive style on perceptions of auditor responsibility in detecting corruption. A person's cognitive style refers to a person's particular way of obtaining, storing, recovering and transforming information [4-8]. Individuals with field dependent styles understand globally, adhere to structures as given and have a socialorientation. While field independent individuals tend tobe analytical, they are able to determine their own structure of information and have an

impersonal orientation [9-14].

Previous research has shown that cognitive style influences the auditor's decisions and abilities in detecting corruption [15-20] Cognitive style influences accounting decisions [21-30]. Cognitive styleinfluences the performance of accountants and auditors[6]. However, researchers have not found a study that examines the role of cognitive style field dependency with how much responsibility the auditor perceives to detect corruption.

Triangle model of responsibility theory uses to explain the role of the cognitive style of internal government auditors in their responsibility to detectcorruption. The theory of triangle model of responsibility in the identity-event relationship (personal control) can also be observed from the FI/FD measurement model the Group Embedded FigureTest/GEFT [26]. Individuals will be categorized as field independent if they are able to identify more embedded figures. Field independent is an important characteristic of the audit because the auditor must evaluate complex information and identify certain problems in the context of the overall environment. An independent person is more efficient in buildingconclusions and is better at solving problems [3],[9]and decision making [2]. This is in line with the results of [27] study which found that independent auditors detected higher levels of fraud. Thus internal auditors who have a cognitive field independent style are better able to analyze the occurrence of corruption because they are able to think and process information more comprehensively.

Other factors that can shape perceptions of auditor responsibility in detecting corruption that will be tested in this study are the level of moral development. Research that links moral development with the responsibility of detecting corruption is based on a model of moral development [19],[28]. The developmental moral explains the fundamental framework of the cognitive processes of individual decision making related to ethical dilemmas. The Kohlberg stage model [19] consists of three levels namely preconventional, conventional, and principled or postconventional. This study assumes that the ethical dilemma faced by internal auditors is how they perceive responsibility for detecting corruption.

Previous research has shown that moral development influences auditor decisions and judgment [1] Effect of moral development on risk [10].Effect of moral development on ethical decisions [12]. Effect of moral development on perceptions of reputation and performance [11]. However, researchershave not found a study that examines the role of moral development on how much responsibility the auditor perceives to detect corruption.

The research aims to examine the influence of cognitive style and the moral level of the auditor's development on the auditor's responsibility to detect corruption. Cognitive style variables are categorized in the type of cognitive field dependent and field independent. For moral variables tested at high and lowlevels.

2. Literature Review

2.1 The Triangle Model of ResponsibilityTheory

The Triangle Model of Responsibility [29] provides an integrative framework for evaluating perceived responsibility and the relationship between accountability, responsibility and performance. In this context, the responsibility one perceives is related tothe performance standards and also the events covered by the standard. In [6] suggests that responsibility is "a psychological condition that is attached to someone in building a form of feeling / prescription and managing events based on that prescription".

To further understand the framework of the understanding of The Triangle Model of Responsibility, it will be explained more deeply about the concepts and definitions of

responsibility, elements in TMoR. The elements contained in the framework of The Triangle Model of Responsibility are prescription, event and identity. Each element has a relationship that is event prescription; prescription-identity and identity- event link. The relationship between prescription and events has task clarity. The relationship between prescription and identity has a personal obligation. The relationship between identity and event has personal control.

The elements contained in the framework of The Triangle Model of Responsibility are prescription, event, identity. Prescription is a code or rule for the behavior that applies and provides an answer to the question, "*What should happen here?*". The prescriptions explicitly or implicitly include information about goals or objectives to be achieved, guidelines or ways to achieve goals, and standards used to assess the quality of performance. This event is a performance unit or work unit that is under examination, and provides answers to the question, "*What is happening here?*". An event usually consists of a series of actions and consequences. The size of the unit depends on the purpose of the evaluation. Identity refers to the role of actors, quality, commitment, aspirations, and pretensions because they are associated with prescriptions and events. This identity characteristic answers the question, "*Who is involved?*".

Figure 1 shows the model of Schlenker's responsibility, namely The Triangle Model of Responsibility.

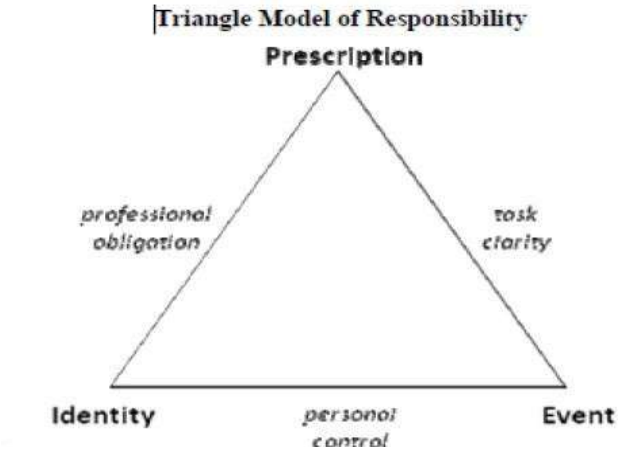

Figure 1

Figure 1 shows the relationship between *prescription-event* (*task clarity*), *prescription-identity* (*personal obligation*), *identity-event* (*personal control*). The relationship between prescription-event (task clarity) refers to the extent to which prescription clarity applies to certain events. The relationship between prescription-identity (personal obligation) refers to the extent to which certain prescriptions are seen as applicable to actors based on the characteristics of actors, including the physical qualities of actors (for example, physically healthy and of sufficient age), roles (eg parents, lawyers, supervisors), and beliefs (for example, religious beliefs, political affiliations). The relationship between identity-event (personal control) refers to the extent to which a person is associated with the event itself.

3. Hypotheses

3.1 Triangle Model of Responsibility, CognitiveStyle and Perceived Responsibility

In the supply chain, and especially concerning global organisations, the potential for corruption is high, due to the increase in touch points involved and the differing standards of ethics

in various countries." Taking short cuts outside of agreed processes, or accepting gifts – which leads to favouring an outcome to a certain supplier – is also fraud, as is purposely not documenting meeting outcomes and actions, or being influenced by senior management to perform duties outside code of conduct and policy. Cognitive style is defined as a preferred approach and individual habits to organize and represent information [8]. [24] defines cognitive style as individual differences in preferred ways to organize and process information and experience. According to [3], cognitive style is an individual difference in how to see, think, solve problems, learn, and relate to one another. This explains how individu processes and organizes information so that it comes to an assessment or conclusion based on their observations of the situation [3].

In [8] use two different perceptual styles,namely the field dependence consisting of field dependent (FD) and field independent (FI). Individuals with field dependent styles understand globally, adhere to structures as given and have a social orientation. Individuals with field independent styles tend to be analytical, able to determine their own structure for information and have an impersonal orientation [14]. Field dependent individuals have perceptions and information processing that are influenced by the context in which they operate. This is the extent to which the organization dominates the perception of each of its parts [8]. Field dependents rely on external views while field-independent relies on internal views.

The triangle model of responsibility theory in the identity-event relationship (personal control) can explain the role of internal government auditors in their responsibility to detect corruption. The identity-event relationship (personal control) can also be observedfrom the FD / FI measurement model, namely TheGroup Embedded Figure Test [26]. The model measures the ability of individuals to recognize embedded figures in larger and more complex forms. Someone will be said to be independent if they are ableto identify more embedded figures. Because auditors must evaluate complex information and identify problems embedded in the context of the environment as a whole, field independence can be an important characteristic of the audit. An independent person is more efficient in building conclusions and is better at solving problems [3],[9] and decision making [2]. This is in line with the results of [27] study which found that independent auditors detected higher levels of fraud. Cognitive field-depedence characteristics [15],show that cognitive field independent style is able to analyze well the occurrence or absence of corruption, able to determine their own structure of information and impersonal orientation, having freedom in workingand not depending on the social environment. Whilethe field dependent cognitive style works with a more structured and sensitive social environment.

Thus internal auditors who have a cognitive field independent style are better able to analyze the occurrence of corruption because they are able to think and process information more comprehensively. In addition, cognitive style has a more personal sense of control over the occurrence of corruption in the government environment. The inherent characteristics of each of these cognitive styles will have an impact onhow far the responsibility is perceived in detecting corruption. Thus it can be concluded that internal auditors with cognitive field independent tend to have higher levels of perceived responsibility in detecting corruption than field dependent.

Based on this framework, this study builds one hypothesis as follows:

H1: Internal auditors with independent field cognitive styles have a higher level of responsibility than field dependent styles in detecting corruption.

3.2 Triangle Model of Responsibility, Moral development and Perceived Responsibility

Kohlberg argues that moral development is an increase in complexity from a social perspective into argumentative considerations of how moral dilemmas should be resolved [24]. Kohlberg divides moral beliefs into six stages, starting from an egocentric perspective, followed by considering the interests of others and then group expectations, then covering the interests of society as a system, and finally placing human rights before society and ethical principles.

In [22] uses the Lawrence Kohlberg framework to position the assumption that human behavior is significantly related to a number of accounting theoriesin organizational practice. The article concluded that, although accounting reflects the prevailing values and beliefs of modernity, it is not enough for matters related to morality. Research conducted by [17] shows the level of moral auditor development influences sensitivity sensitivity and judgment independence. Research conducted by [17] shows that moral responsibility will increase with increasing hardness of consequences, moral certainty and level of involvement. Conversely moral responsibility willdecrease with the amount of pressure. Research conducted by [8] shows that obedience pressure from superiors significantly increases the auditor's desire to sign-off accounts that are materially misstated, whereas conformity pressure has no effect. Research conducted by [15] conducted a test of the role of discussion on auditor moral reasoning. The results show that auditors have higher moral reasoning scores after prescriptive discussions with peers and lower moral reasoning scores after deliberative discussions with peers.

In [26] examined auditor moral reasoning bycomparing auditors from Canada and America. The results show that institutional factors are more likely to be related to the discussion of auditor reasoning from their prescriptive reasoning in both countries. Inaddition, the study shows that the national institutional context found in the United States, where the country has stricter regulations and a more law-conscious environment, seems to encourage auditors to talk aboutthings they consider "ideal" judgment compared to the Canadian context.

This study uses the Triangle Model of Responsibility theory as a basis for connecting the influence of moral development on the auditor'sresponsibility in detecting corruption. The moral development of preconventional, conventional and postconventional auditors is in line with the triangle model of responsibility theory. This can be explained through moral characteristics possessed by preconventional, conventional and postconventional. By observing the characteristics of each moral development and associated with each element / link on the triangle theory of responsibility, it can be concluded how far the responsibilities perceived by theinternal auditor in detecting corruption.

Preconventional moral reasoning is based on thefocus of selfishness to avoid punishment and seek rewards, whereas conventional moral development is based on laws and regulations that represent good interpersonal relations and maintain social order. For postconventional moral reasoning it is based on the principles of universality and virtues such as justiceand care, and building social contracts and upholding individual rights. In the relationship of task clarity, the auditor with a low moral (preconventional and conventional) feels unclear rules and standards that must be fulfilled when faced with corruption cases. Whereas in the identity-event relationship (personal control), they will avoid their responsibility by feeling the inability to control an event which in this case isthe event of detecting corruption. In the relationship between prescription-identity (professional obligation),the auditor will avoid the responsibility of detecting corruption by assuming that it is not his responsibility.

For auditors with high moral development(postconventional), auditors will feel that they mustmeet binding standards and rules in carrying out their functions of detecting corruption (task clarity) .The auditor will do his best to do his job of detecting corruption with the perception that they are able toperform quality procedures in an effort to detect corruption (the relationship between identity-event (personal control). In the relationship of prescription- identity (professional obligation), the auditor will carry out his function in detecting corruption by assuming that it is fully his responsibility.

Based on this framework, this study builds the second hypothesis as follows:

H2: Internal auditors with postconventional moral development (high) have perceived responsibility higher than conventional and conventional (low) in detecting corruption.

4. Research Method

The subjects in this study are internal auditors ofgovernment institutions in Indonesia. Demographic variables asked were age, gender, work experience, position, educational background. The data collection was carried out when the internal auditors of government agencies throughout Indonesia participated in auditors' functional education and training organizedby the Indonesian Financial and DevelopmentSupervisory Agency (BPKP).

4.1 Research Design

This study uses an experimental design 2X2 factorial design to investigate hypotheses. The independent variable was level of cognitive style and the moral level of the auditor. We manipulated two levels of cognitive style as fields are independent and field dependent. While the moral level of the auditor is manipulated at two high and low levels.

4.2 Experimental Task Procedures

All experimental tasks can be completed in approximately forty minutes. The task that participants must perform are the government agencies in which they work. The questions include name, age, gender, education, work place agency, job title, length of service and amount of audit experience. In addition, participants were also asked to select the accountabilitypressure provided. Second, there should be informationabout the government agency and the corruptions content that occurs. The participants were then asked toanswer questions related to auditors' perceived responsibility based on the three elements of triangle model of responsibility from [6]. In the last session a question was asked for manipulation checks to ascertain whether participants understood the given experiment assignment scenario.

4.3 Measures

Perceived responsibility to detect fraud as measured by six questions related to the triangle of responsibility models. Specifically, two questions related to the prescription-identity (professionalobligation) link, two questions related to task clarity, and two questions related to the identity event (personal control) link. The questions were measured using a 100 point scale [29]. The participant's field dependent / independent cognitive style was measured through The Group Embedded Figures Test (GEFT) developed by [18]. While the level of moral development (high and low) is measured through the Defining Issues Test [28].

5. Results

5.1 Manipulations Checks

Table 1 presents a description of participants'answers to manipulation questions.

Table 1. Descriptive Statistics Tests for Manipulation Questions

	N	Range	Min	Max	Mean	Std. Dev.
Materiality	92	8	2	10	7,47	2.030
Understandable	92	8	2	10	6,75	2.284
Realistic	92	9	1	10	8,21	1.671
More budget leftovers	92	9	1	10	5,59	2.590
Perceived Responsibility	92	9	1	10	6,59	2.387
Tend to detect	92	9	1	10	7,38	1.932
Responsibility change	92	8	2	10	7,49	1.486
Valid N (listwise)	92					

From the participant's answers to 7 (seven) manipulation questions obtained above 5 values (range 1 to 10). This value is higher than the middle value of the given scale. Thus it can be concluded thatparticipants can understand the experimental scenario given by the researcher. Table 2 presents the number, average and standard deviation of perceptions of responsibility for detecting corruption as indicated by the choice of the number of audit procedures that will be used to detect corruption. Responsibility is measured using a Likert scale of 0 to 100 (0 = "no responsibility"; 100 = "very responsible") for 6 (six) items that are adopted from responsibility triangle links [29].

5.2 Descriptive statistics

Table 2 presents the number, average and standard deviation of perceptions of responsibility for detecting corruption as indicated by the choice of the number of audit procedures that will be used to detect corruption. Responsibility is measured using a Likert scale of 0 to 100 (0 = "no responsibility"; 100 = "very responsible") for 6 (six) items that are adopted from responsibility triangle links [29].

Table 2. Perception of Responsibility for Detecting Corruption

		N	Mean	Dev. Std.
Cognitive Style	*Field Independent*	52	84,67	12,420
	Field Dependent	40	70,58	13,243
Moral Development	High	49	81,47	12,401
	Low	43	75,21	16,125

Table 2 shows that based on differences in cognitive style, there were 52 field independent participants, while 40 field dependent participants. This amount was obtained from filling in cognitive style instruments from the Embedded Figure Test (GEFT) group by participants. Participants who were able to find more than 9 (nine) simple figures embedded in more complex figures were categorized as field independent cognitive styles (FI) whereas if less than those numbers were categorized as field dependent (FD). The average perception of responsibility detects corruption in field independent participants of 84.67 (St.Dev. 12.420) while the participants in the field dependent are 70.58. Based on differences in the level of moral development, 49 participants with high moral development and 43with low moral development. The average perception of responsibility detects corruption in participants with high moral development of 81.47 while participants with low moral development are 75.21.

To assess the relationship between the three points of view of responsibility based on the theory of the triangle model of responsibility (Schlencker, 1994) used six items of questions. Two questions related to the relationship of prescription-identity (professional obligation), two questions related to the relationship of prescription events (task clarity) and two questions related to identity-event relationships (personal control). These questions are measured using a 100- point scale. Table 3 presents the average perception of responsibility for each question in the Triangle Model of Responsibility (TMoR) element based on a corruption scenario.

Table 3. Descriptive Statistics Link Triangle Model of Responsibility (TMoR)

TMoR Link	Mean
PO #1	80,29
PO #2	84,12
PO Mean	82,21
TC #1	78,82
TC #2	77,65
TC Mean	78,24
PC #1	75,00
PC #2	76,18
PC Mean	75,59

Information:
PO: Professional Obligation (Prescription-Identity) link
TC: Task Clarity (Prescription-Event) link
PC: Personal Control (Identity-Event) link

Item questions in PO#1 and PO#2 are related to the Professional Obligation (Prescription-Identity) link. The question PO#1 is measured by asking "*how is the relevance of detecting this corruption to your work?*". The question in PO#2 is measured by asking "*how far is your obligation to detect such corruption?*". Theaverage answer to PO#1 questions is 80.29 while the average answer to PO#2 questions is 84.12. Thus indicating that the perception of responsibility for detecting corruption is based on the professional obligation element, the element of relevance is lower than the element of detecting obligation to the Indonesian government's internal auditors. The item questions on TC#1 and TC#2 are related to Task Clarity (Prescription-Event) links. Questions on TC#1 are measured by asking "*how clear is your authorization to detect*

corruption?". Questions on TC#2 are measured by asking "*how does the information that you get about the procedure that must be followed to detect the corruption?*". The average answer to the TC#1 question is 78.82 while the averageanswer to the TC#2 question is 77.65. Thus this result shows that the perception of responsibility for detecting corruption is based on elements of task clarity, the element of authorization is higher than the element of information in detecting corruption in the Indonesian government's internal auditors.

Item questions on PC#1 and PC#2 are related to Personal Control (Identity-Event) links. The question on PC#1 is measured by asking "*how much control do you have as an internal auditor over your ability to detect such corruption?*". The question on PC#2 is measured by asking "*how many contributions can you make in detecting the corruption?*". The average answer to the PC#1 question is 75.00 while the averageanswer to the PC#2 question is 76.18. Thus demonstrating that the perception of responsibility for detecting corruption is based on a personal control element, the element of "*control*" is lower than theelement of "*contribution*" in detecting corruption in theIndonesian government's internal auditors.

5.3. Hypothesis testing

The first hypothesis (H1) which states that Internal Auditors with independent field cognitive style have a higher level of responsibility than field dependent styles in detecting corruption. The test results can be seen in table 4.

Table 4. Hypothesis One Results (H1)

Cognitive Style	*N*	*Mean*	*Std. Dev*	Levene Test		*Equal Variance Assumed*	
				F	Sig	T	Sig
Field Independent	52	84,67	12,420	1,949	0,166*	5,244	0,000*
Field Dependent	40	70,58	13,243				

Table 4 shows that based on descriptive statistical data, participants with field independent cognitive styles were 52 people and had an average perception of responsibility for detecting corruption at 84.67 (st. dev. 12.420). For participants with field dependent 40 people and having an average perception of responsibility for detecting corruption at 70.58 (st. dev. 13.293). From table 4, it can be seen that the F calculated levene test is 1.949 with a probability of 0.166. Because the probability is more than 0.05, it canbe concluded that the two groups have the same variance. Thus the analysis of different tests t-test uses the assumption of equal variance assumed. The results of the different test t-test indicate that the value of t at the equal variance assumed is 5.244 with a significance probability of 0.000. A probability value below 0.05 indicates a significant average difference between the two test groups. Thus it can be concluded that theaverage perception of responsibility for detectingcorruption among groups that are field independent anddependent fields differ significantly. Based on the results of these tests, it can be concluded that the first hypothesis (H1) states that internal auditors with field independent cognitive styles have a higher degree of perceived responsibility than field dependent in detecting corruption statistically supported.

The second hypothesis (H2) which states that Internal Auditors with high moral development have a higher level of responsibility than low moral development in detecting corruption. The test results can be seen in table 5.

Table 5. Hypothesis Test Results Two (H2)

Moral Development	*N*	*Mean*	*Std. Dev*	*Levene Test*		*Equal Variance Not Assumed*	
				F	*Sig*	*T*	*Sig*
High	49	81,47	12,401	4,320	0,041	2,065	0,042*
Low	43	75,21	16,125				

Table 5 shows that based on descriptive statistical data, participants with a high moral development level amounted to 49 people and had an average perception of responsibility for detecting corruption at 81.47 (st. dev. 12.401). For participants with low moral development levels, there were 43 people and had an average perception of responsibility for detecting corruption of 75.21 (st. dev. 16.125). From table 5, it can be seen that the F calculated levenetest is 4.320 with a probability of 0.041. Because the probability is less than 0.05, it can be concluded thatthe two groups have different variances. Thus the analysis of different tests t-test uses the assumption of equal variance not assumed. The results of different tests t-test indicate that the value of t in equal variance not assumed is 2.065 with a significance probability of 0.042. A probability value below 0.05 indicates a significant average difference between the two test groups. Thus it can be concluded that the average perception of responsibility for detecting corruption among groups with high and low levels of moral development differs significantly. Based on the results of these tests, it can be concluded that the second hypothesis (H2) states that high moral development hasa higher level of perceived responsibility than moral development which is low in detecting corruption statistically supported.

6. Discussion

Supply chain management is an efficient role fordetection of corupption faced by Indonesian government internal auditors in this study indicate that the cognitive field independent style is better able to analyze the occurrence of corruption because they are able to think and process information more comprehensively. In addition, cognitive style has a more personal sense of control over the occurrence of corruption in the government environment. The inherent characteristics of each cognitive style will have an impact on how far the responsibility is perceived in detecting corruption. Thus internal auditors with cognitive field independent tend to have a higher level of perceived responsibility in detectingcorruption than field dependent.

The case of corruption detection is one case that requires a high level of analysis and sensitivity in managing information as an effort to detect corruption. In this case the government internal auditor will manage financial statement information that contains corruption. Conclusions on processing information willproduce different perceptions depending on how they respond and manage information. Thus the differencein cognitive style of an internal auditor will result in different perceptions of responsibility in detecting corruption.

The results of this study which indicate a difference in perceptions of responsibility between the two types of cognitive styles (field independent and field dependent) can be explained by the relationship between elements of the theory of Triangle Model of Responsibility (TMOR). Analysis of the relationships between elements of the Triangle Model of Responsibility theory

provides an explanation of the factors underlying internal auditors perceive responsibility for detecting corruption. Thus internal auditors who have a cognitive field independent style are better able to analyze the occurrence of corruption because they are able to think and process information more comprehensively. In addition, cognitive style has a more personal sense of control over the occurrence of corruption in the government environment. The inherent characteristics of each cognitive style will have an impact on how far the responsibility is perceived in detecting corruption. Thus, internal auditors with cognitive field independent tend to have higher levels of perceived responsibility in detecting corruption than field dependent. The results of this study support previous studies which showed that field independent individuals were more efficient in building conclusions and were better at problem solving [3],[9] and decision making [2],[4]. This is in line with the results of the [7] study which found that independent auditors detected fraud at a higher level. The results of this study are in line with the results of previous studies, although not tested on similar variables.

The results of second hypotheses of this study indicate that auditors with a high level of moral development (postconventional) have more perceptions of responsibility than auditors with low levels of moral development (preconventional and conventional). Preconventional moral reasoning is based on the focus of selfishness to avoid punishment and seek rewards, whereas conventional moral development is based on laws and regulations that represent good interpersonal relations and maintain social order. For postconventional moral reasoning it is based on the principles of universality and virtues such as justice and care, and building social contracts and upholding individual rights.

The results of this study which show that there are differences in perceptions of responsibility between the two levels of moral development (high and low) can be explained by the relationships between elements of the Triangle Model of Responsibility (TMOR) theory. Analysis of the relationships between elements of the Triangle Model of Responsibility theory provides an explanation of the factors underlying internal auditors perceive responsibility for detecting corruption. In the relationship of task clarity, the auditor with a low moral (preconventional and conventional) feels unclear rules and standards that must be fulfilled when faced with corruption cases. Whereas in the identity-event relationship (personal control), they will avoid their responsibility by feeling the inability to control an event which in this case is the event of detecting corruption. In the relationship between prescription-identity (professional obligation), the auditor will avoid the responsibility of detecting corruption by assuming that it is not his responsibility.

For auditors with high moral development (postconventional), auditors will feel that they must meet binding standards and rules in carrying out their functions of detecting corruption (task clarity) .The auditor will do his best to do his job of detecting corruption with the perception that they are able to perform quality procedures in an effort to detect corruption (the relationship between identity-event (personal control). In the relationship of prescription- identity (professional obligation), the auditor will carry out his function in detecting corruption by assuming that it is fully his responsibility.

The results of this study indicate the role of moral development on how much responsibility the auditor perceives to detect corruption. The results of this study support previous studies which showed that the level of moral development can influence auditor decisions and judgments [1],[17],[21]. Moral development influences ethical decisions [12]. Effect of moral development on perceptions of reputation and performance [11],[20].

7. Conclusion

There is no effective audit tool available as on date for identification of all type of mistakes/frauds/irregularities. In the fraudulent transactions scenario of Supply Chain, the various detection techniques for fraud can be seen as a problem of classification of legitimate transactions from the fraudulent transactions. The results of this study are expected to provide empirical contributions regarding the theory of responsibility of The Triangle Model of Responsibility [30] which is a psychological theory that can confirm the responsibility of the auditor's perception in detecting fraud. The Triangle Model of Responsibility places that the perception of the responsibilities of internal government auditors is a direct function of the strengths of the three psychological relationships between these three formative elements of responsibility. Findings from the results of testing the first hypothesis (H1) and the second hypothesis (H2) prove that the determinants of someone to be responsible can be explained by professional elements of obligation, task clarity and personal control.

Government agencies/regulators should be able to provide clear guidelines and references on risks and ways of detecting corruption faced by government institutions. Thus, they are expected to continue to have high responsibility in detecting corruption that they must handle. The results of this study which indicate the existence of different levels of perceptions of responsibility in detecting corruption from cognitive styles and auditor moral development levels can be a direction for managers of government institutions in an effort to improve the capabilities of their internal auditors. By understanding the cognitive style and moral development level of the auditor, it can be predicted how internal auditors perceive their responsibility in detecting corruption. Thus, if the auditor's characteristics can be understood and conditioned in his assignment as an internal auditor, his performance will be higher.

8. Limitations and future Research

The limitations of this study are, first, due to the background of the research participants. Although the internal auditors who were 41.30% participants were from S1 (strata 1) education majoring in accounting but most were still at level 1 (first auditor) which was equal to 47.83% and had audit experience of less than 5 years (46.75%) Educational background and experience and auditor level can affect the performance of internal auditors both in the implementation of tasks and the power of analysis and sensitivity to corruption cases. The next limitation is that which is inherent in the experimental research method is the existence of low external validity. This means that the level of generalization of research results cannot be stated in general.

The next researcher can further expand the results of this study suggestions that can be given to further researchers can measure the efforts made by the auditor in detecting corruption through measurements of brainstorming effort. Thus research that will be able to comprehensively measure perceptions of the responsibility felt by auditors in detecting corruption as well as the effort that they undertake in audit activities detects such corruption

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3.3. *Cognitive Style and Cognitive Mapping: Experimental Study in Accounting Decision Making*

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Abstract

The purpose of this study is to examine whether there are differences in performance when groups with a variety of cognitive styles use the same performance report format for tasks that involve identifying problems and formulating responses in detail. Furthermore, this research will test the role of cognitive mapping in reducing cognitive bias in decision making. The experimental design was used through a three by two (3x2) factorial design (betwen-subject). The scenario uses a complex production assignment schedule. Cognitive style instruments are measured using dimensions from the MBTI (Myers-Briggs Type Indicator). There are three working group configurations, the sensors dyad members, the intuitive dyad and the combination member of both. Group decision making performance can be seen from the achievement of optimal production units, optimal profits and speed of time. The test results show that the performance of the pair of sensor-intuitive is higher than sensors dyad. While there is no difference in performance between sensor-intuitive pairs and intuitive-intuitive dyad cognitive styles. The results of the use of mapping model showed that there was no difference in performance between groups of sensor dyad with sensor-intuitive dyad. This result indicate that causal cognitive mapping canreduce the bias or deficiencies that exist in the cognitive style of the sensor. The implication of this study that organizations will benefit from understanding bothindividual and group cognitive styles.

I. Introduction

To achieve an optimal decision, adequate information is needed, both information from the internal and external environment relating to the decision to be taken. In the decision making process, many decision makers only base on simple and easy methods [1]. This happens becauseof the limited capacity of the ability to process information, so they onlyadopt simple ways by using mental strategies or heuristics to overcome the complexity of the problems that occur [2]. Analysis and high benefits of performance information reports will be influenced by the perception, interpretation, and utilization of information by users of the report [3].

The results of studies in accounting and psychology suspect that different people will process information differently [4]. This dependson the structure of their knowledge, experience, and cognitive characteristics of a person ([5]; [3]; [6]). One of the challenges of a management control system designer is how to understand the differences that influence the use of information feedback contained in performance reports [4]. [7] state that a person's differences in processing information can betraced in a variety of cognitive style literature. Some characteristics of cognitive style are (1) simple versus complex; (2) adapter versus innovator [8]; (3) field-dependence versus field independence [9]; (4) analytic versus intuitive [10]; (5) Sersor versus intuitive [4]; (6) individualist versus collectivist [11]. This study will examine the cognitive dimensions of sensors and intuitive. Sensing decision makers (sensors) are someone who prefers a detailed model for processinginformation, paying more attention to each element and concentratingon facts and forms. While

intuitive decision makers tend to prefer "global types" in processing information, perceiving problems as a whole ([12]; [7]). Differences in the nature of sensors and intuitive will lead to differences in perceptions about information and problems even if given information with an identical format ([13]; [14]).

Differences in cognitive style cause different perceptions in utilizing financial information and performance reports. Thus the organization will face problems in designing and preparing reports [4]. Thus it will raise the question whether the report has met the same standards for various users, it is a problem that is serious enough to overcome cognitive differences. Meanwhile, some authors suggest creating various accounting formats to accommodate various cognitive styles when processing information ([7]; [15]; [16]), but in anorganizational approach this raises various problems.

As an alternative approach to improving report design, what is very good for current group orientation is to form a combination of workers consisting of members of different cognitive styles [4]. This group will lead to a variety of cognitive styles in solving complex business problems using accounting performance reporting standards. While analysis of standard performance reports can help users in formulating problems and developing more specific responses, the cognitive style literature assumes that the intuitive force will focus on the formulationof the problem while the sensor force will emphasize specific details. Groups or groups consisting of intuitive and sensor styles have theadvantage of using more comprehensive information, and potentially will result in better decision performance. Previous literature suspected that increasing group diversity would lead to conflict between groups ([17]; [18]; [4]), the study controlled for conflicting tasks in pairs. The results of the study show that there are differences in performancebetween group pairs, sensors dyad have higher performance than intuitive dyads.

To neutralize the occurrence of cognitive biases on the cognitive style of decision makers, cognitive mapping methods or tools can be used. This cognitive map stems from psychological research developed by [19] in experimental studies of animals and humans. This cognitive map includes concepts about various aspects and human life, namely aspects of environmental decisions and beliefs about causalrelationships. This cognitive map can be a lens of interpretation that helps a decision maker choose various important and certain aspects of the problem to be analyzed. As it develops, cognitive maps are increasingly being used in various studies. Axelrod (1976 in [20]) developed methods for presenting cognitive maps diagrammatically. This mapping is often used to present an individual's view of the world, used to present various thoughts among strategic decision-making groups, so it is very useful in studies relating to complex decision- making problems. Causal cognitive mapping techniques have becomethe most useful way of providing strategic understanding of the environment and industrial strength. Several studies on the use of causal cognitive mapping techniques in determining strategic decisions have been carried out. Causal cognitive mapping techniques are seen as able to overcome these limitations and become useful tools in management studies ([20]; [21]).

Based on the foundation of the literature that has been described previously, researchers are motivated to test the optimal decisions of the group consisting of sensors and intuitive cognitive styles and cognitive mapping to reduce the cognitive influence of decision makers. Some things that distinguish this study from previous studies are researchers incorporate causal cognitive mapping techniques in testing the optimization of decision making. This is to see whether the technique is able to reduce cognitive biases from decision makers both individuals and groups. In addition, modifications were made to the research instruments and statistical analysis methods. Modifications to the research instrument were carried out based on various considerationsand after conducting a pilot test to see the weaknesses of the research instrument. The selection of statistical analysis methods was carried out to find a test tool that could better answer the research hypothesis.

The purpose of this study is to test whether there is a positive effect on performance when groups with a variety of cognitive styles use the same performance report format for tasks that involve identifying problems and formulating responses in detail. Next test the role ofcognitive mapping in reducing cognitive bias in decision making.

II. Literature Review and Hypothesis Cognitive Style and Decision Making

A person's cognitive style refers to a person's particular way of obtaining, storing, retrieving and transforming information ([7]; [22]). Previous research indicates that one should prioritize understanding information ([23]; [3]). This study classifies cognitive styles into sensors(detail type) and intuitive ((global type). Sensor style is perceived as someone who is more focused on facts, details, and realistic thinking. Someone with sensor style tends to be oriented to the current condition with the approach is more concerned with benefits, while the intuitive style is more focused and concentrated on understanding meaning and relationships, exploring possibilities, using hunches and speculation, andoriented to the future is also more theoretical approach. Someresearchers ([12]; [24]; [25]; [7]; [26]; [27]) describe various characteristics and preferences for these two cognitive styles.

Research in psychology and management has examined therelationship between a person's perception model (sensing or intuitive) and the way a person processes information. Based on a review ofprevious studies, [24] state that there is enough evidence that managers with sensors preferences tend to receive and process systematically all signs and information, whereas managers who are intuitive tend to process abstract information and perceptual. This shows that someone will receive the information presented to them in the performance report in different ways and the results will also make different decision making.

Some accounting research examines differences regarding information perception in terms of decision making by sensors andintuitive types. Previous research on this subject produced thiscombination ([28]; [13]). In predicting bankruptcy, [28] found that the intuitive style had higher performance than sensors, and the impact was that intuitive managers were better able to perceive and understand the implications for the levels, trends and trade-offs of various financial ratios presented. In contrast, [13] and [23] failed to find a similar difference and the task of decision making given. The study of [7] seeks to reconcile the differences in findings about information presented to someone. Both [13] and [23] do not give a person information about economics and management. [7] state that by not providing additional information, these authors ignore the benefits of intuitive style in using information to produce performance patterns. Thus [7] suspect that information given to someone must be dissertated with sensitivity to the characteristics of information users. [3] provide further support for the importance of different perceptions of information among individuals with different cognitive styles. In the context of resource allocation, the authors find support for the proposition that the intuitive style is more focused on broad consequences and considers information holistically. Furthermore, this style prefers to identify opportunity costs that are implicitly associated with various types of expenditure. Research by [4] shows that the way a person responds to information in the form of accounting reports differs depending on each cognitive style. It also suggests that an accounting report designer needs to be sensitive about how the information provided will be interpreted and processed by someone different. Research by [29] tested cognitive misfit on auditor performance, the results showed that there was a mismatch between a person's cognitive style and auditor assignment characteristics.

The study of [7], show that information givers need to be sensitive to a person's cognitive characteristics, but it also implies that someindividuals may be more suitable for completing specific aspects of a task based on cognitive disposition in processing relevant

information. Compared with [28] and [13] studies, it shows that someone who is intuitive according to information of a global type not only results in superior performance, but also higher performance than individual sensor styles. This suggests that assigning tasks used in the study requires information processing closer to the intuitive cognitive style. The same conclusion can be drawn from the assignments used by [3]. They study involving decision making at the individual level, the implication is superior results are made by decision makers who receive information according to their cognitive style.

Research conducted by [30] examined differences in cognitive styles in various cultural variations. This study distinguishes the traditional dichotomy between 'intuitive' East and 'analytic' West. The results show that more intuitive style is owned by managers with Anglo, Northern European, and Latin European nationalities. While the analyticstyle is more widely owned by managers in developing countries and theArab region. Research conducted by [31] is a replication and extension of research conducted by [30] regarding the size of the Cognitive Style Index (CSI). They research attempts to investigate the construct and validity of CSI. Participants involved more than a thousand people. The results show that the maximum likelihood factor analysis obtained is generally in line with the results of [30]. There is no relationship between CSI measures with other measures (Cognitive Style Analysis / CSA). This shows that cognitive style is free of gender, but related to job level.

Research conducted by [32] show that analytical supervisors are more protective and less dominant than their intuitive counterparts. Research conducted by [33] examines how cognitive styles as measured through MBTI can influence the outcome of strategic decisions. The results show that managers who are intuitive / thinking use their intuition to make cognitive leaps based on information goals to produce higher quality decisions. Instead, managers who are sensing / feeling usetime to produce socially acceptable decisions. There is no effect on assertiveness or effectiveness felt in perceiving or judging managers. This result also shows that extraverted managers are more effective thanintroverted ones. Thus cognitive style affects the outcome of actualdecisions as people perceive the performance of one's decisions.

Research conducted by [34] examined the relationship between personality and cognitive style with manager's decision making style. Decision making style uses decision making regarding Inventory and cognitive style uses the Myer Briggs Type Indicator measure. The results show that the 'intuitive' type of personality is significantly relatedto the conceptual decision style. Research [4] examine how cognitive style diversity influences the quality of decisions produced by cognitive style pairs on complex assignments. The experimental method was developed by testing differences in cognitive styles based on sensor / intuitive dimensions. Measurements using the MBTI (Myer Briggs TypeIndicator) instrument. The results showed a significantly better performance shown by the performance of couples with different cognitive styles (sensor and intuitive) compared to the same cognitive style namely sensors dyad. Task conflict is not significant in explaining differences in performance. They result has implications for designing management control systems and management personnel.

Research [29] examine the role of "cognitive misfit" on auditor performance. Cognitive misfit is a mismatch between cognitive style and the auditor's job characteristics. The results indicate the auditor's cognitive style significantly interacts with the type of assignment. Analytic auditors perform higher on this type of analytical assignment than intuitive assignments. While intuitive auditors perform higher on the type of intuitive assignments than the analytical type.

Research [35] examined the effect of cognitive style and type of feedback on the ability of internal auditors to identify and document audit information through Internal Control Questionnaires (ICQ). The results show what contradicts researchers' expectations.

Cognitive style does not significantly affect performance with or without feedback. However, as expected, a significant relationship between cognitive style and post-feedback task performance was found, with the combination ofcognitive style and feedback resulting in a positive performance increase.

Causal Cognitive Mapping

Causal cognitive mapping is part of cognitive mapping that emphasizes cognitive presentation as a form of interaction of cause and effect relationships [36]. Of the five map types [20], causality is a type of map that is quite popular to be used in the field of strategic management research. This is because of some advantages of the causality map type especially in the context of understanding decision making. Causality provides great potential for procedural knowledge (how it works or how to do it) compared to other relationships such as association, constructs or categories which are more emphasized in other types of mapping [36]. Causal map shows the causal relationship between various concepts. Concepts that are considered by a decision maker to have an interaction are then linked by arrows. This relationshipcan be in the form of positive or negative relationships, so to show it is given a sign (+) and (-).

Theory Of Constraints (TOC)

This research instrument is an assignment scenario that utilizes the Theory of Constraints (TOC) theory. Experimental assignments related to the constraints faced by participants when determining targets and performance in dilemmatic production decision makers. TOC is a management philosophy that helps a company increase profits by maximizing its production and minimizing all relevant costs or costs such as saving costs, direct costs, indirect costs, and capital costs. TOCis an approach to process improvement that focuses on elements that areconstrained to increase output. This is based on the fact that, like a chainwith the weakest links, in some complex systems at a certain time, there is often one aspect of the system that limits its ability to achieve more ofits goals.

The application of TOC is more focused on managing operational constraints as a key in improving the performance of the production system, which in turn can affect overall profitability. Theory of Constraint (TOC) recognizes that the performance of each company is limited by its constraints, which then develops a constraint approach to support the goal, namely the continuous progress of a company (continuous improvement).

Research Development

Sensors styles are more likely to identify and classify specific details and apply them in structured patterns (habits) for carrying out tasks. Instead, intuitive styles are more suited for receiving information globally, identifying connections and relationships, conceptualizing nature and problems, and predicting various solutions. Some organizations stated that to carry out more complex tasks, it involved a lot of people.

Previous research identifies several factors that cause group decision performance to differ from individual performance [37]. Specifically, it shows that performance can be moderated when group members vary in terms of personal characteristics, for example gender [38], experience [39], culture ([40]; [41]; [42]; [43]), abilities [44] and personality ([45]; [46]).

Overall there is support for the proposition that there is diversity by respecting various personal characteristics of members, groups will be more effective when solving problems cognitively as they produce high decisions both in quality and quantity ([47]; [45]).

For complex assignments, good performance will depend on information processing both globally/intuitively and in detail/sensing. Based on statements related to the benefits of having personal diversity within the group, it is hoped that the cognitive style sensors will tend to the detailed elements of the information included in the performance report in relation to decision making. Instead, the intuitive style will process information to get a better understanding of the nature of thetask in relation to formulating solutions. Thus, the following is proposed that a couple consisting of one sensor and one intuitive person will prove a better decision performance than a homogeneous sensor orintuitive pair.

Based on the theoretical foundation and reference of relevant research results, the following hypotheses are constructed:

H1 **:** *The pair consisting of sensors and intuitive will perform higher thanthe pair who only sensors for more complex decision tasks.*

H2 **:** *A pair consisting of sensors and intuitive will perform higher thancouples who are only intuitive for more complex decision task*

Furthermore, to test the decrease in cognitive biases of the cognitivestyle of decision making, the causal cognitive mapping method wasused. The following hypothesis is proposed:

H3 **:** *Reduced cognitive bias when decision makers use causal cognitivemapping techniques before making decisions based on cognitive style.*

III. Method

The subjects in this study were students majoring in Accounting. Demographic variables that were asked were age, gender, grade and relevant subjects. This study uses an experimental design to investigate the proposed hypothesis. The research experiment was designed with three by two (3x2) factorial design and between-subject. Participants are conditioned on the composition of pairs of cognitive styles namelyhomogenous sensors, homogenous intuitive and a combination of sensors and intuitive based on MBTI indicators. The group consisting ofthe pair carries out experimental tasks by collaborating and discussing toproduce the best performance from the group. Assignment performance is measured by unit of production, optimal profit and assignment time ofa production case scenario in a company. To test cognitive abilities in completing experimental tasks, the assignment scenario is designed in such a way as to form task complexity.

The experimental task is based on the theory of constraints on the limitations of machine capacity and production capability. This task involves a series of interdependent decisions regarding how much production must be made in order to achieve optimal profits. The limited resources of the number of production machines and the ability of the company to produce in one period are important considerationsfor members of each pair of experiments. Participants are proxied as production managers and expert staff of production department a manufacturing company. As managers of the production, they need to set production targets for each production machine that can maximizethe company's overall production. The production process involves three types of products, each of which is produced by its own machine (3 machines). The case scenario shows that the company is in financial difficulty so one of the machines is planned not to be operated for efficiency. Participants are asked to make decisions that will produce optimal profits from the removal of one of these production machines. Tasks are designed so that high performance is needed both in identifying and analyzing in detail the problem.

For conditions without mapping, participants are asked to directly conduct an analysis for decision making on a given problem. As for conditions with mapping, participants are asked to map before making a decision based on information provided by researchers. Thus it can be seen the effect or role of mapping on bias in cognitive style.

There are 40 pairs or 120 participants who will work together and discuss the case to be resolved. To provide an understanding of the task of the experiment, the researcher provides an experimental script containing the company profile and production data both the production unit, cost of goods, selling price, machine capacity etc. Then, guided by the researcher, participants are asked to read the case illustrations by perceiving themselves as figures in the case illustrations. Before doing the actual task, participants are given exercises to make it easier to understand the tasks and instructions. Participants are given information about the company's background regarding the production process including the role and capacity of each machine. In addition, participants were given an explanation of the condition of the company and what alternative decisions can be taken by giving some consideration. These considerations relate to production units per period that can be done, the capacity of each production machine, and simulations or examples of decisions taken to achieve optimal efficiencyand profit.

For the conditions of treatment with mapping, participants begin by paying attention to instructions or task requests and familiarizethemselves with the causal cognitive mapping technique that will be used. Each participant received a booklet containing instructions and experimental material in accordance with their position under predetermined treatment conditions.

IV. Result

Table 1 shows the results of MBTI cognitive style testing for all participants (panel A) and for participants who took part in carrying out the experimental task (panel B).

Table 1. MBTI Test Results

Panel A: All Participants who have completed the MBTI Task (140)		
	Cognitive Style	
Panel B: Participants in the Experiment (140)		
Theoretical Range	**Sensors**	**Intuitive**
	0–50	50 – 100
Actual Range	8,3 – 47	56-98
Mean	25,65	81,33
Standart Deviation	12,33	10,82
Panel B: Participants in the Experiment (120)		
Theoretical Range	**Sensors**	**Intuitive**
	0–50	50–100
Actual Range	8,3 – 42	58-92
Mean	28,69	75,75
Standart Deviation	10,14	9,27

Panel A shows that of the 140 participants involved, the cognitive sensor style received an average score of 25.65 (SD 12.33) while the intuitive cognitive style scored an average score of 81.33 (SD 10.82). Ofthe 140 participants involved, only 120 people can continue the experimental assignments (see table 1). Panel B shows that of the 120 experimental participants, the cognitive sensor style received an averagescore of 28.69 (SD 10.14) while the intuitive cognitive style obtained anaverage score of 75.75 (SD 9.27).

Table 2 shows a description of the performance of the production decision-making of three pairs of both the sensor-pair, the intuitive- intuitive pair and the sensor and intuitive pair. There are 16 pairs of sensors, 18 intuitive pairs and 15 pairs of sensor and intuitive dyad.

Table 2. Descriptive Production Decisions

Pairs	Sensors	Intuitive	Sensor_Intuitive
N (Pairs)	**16**	**18**	**15**
Production Unit			
Mean	525,31	650,56	680,00
St. Dev.	158,907	203,223	196,214
Min	250	350	350
Max	850	900	100
Optimal Profit			
Mean	1893645.3125	2318643.3335	2537610.0
St. Dev.	715024.641	835756.491	866709.105
Min	851000	805000	805000
Max	3375000	3770000	3770000
Time			
Mean	42,06	53,06	45,67
St. Dev.	5,543	6,121	5,136
Min	30	38	35
Max	55	60	55

Performance on production decision making can be seen from the unit of production decided to be produced, the optimal profit to be generated and the length of time in decision making. Based on theaverage production unit decided, the pair of sensors decides 525 units, the intuitive-intuitive pair is 650, while the sensor-intuitive pair is 680 units. Based on the optimal profit that can be generated, the pair of sensors produces an average of 1893645.3125, while the intuitive- intuitive pair produces an average profit of 2318643.3335. Furthermore, the sensor-intuitive pair produces an average profit of 2537610.0. The time required by the sensor pair is 42.06 minutes, the intuitive pair is 53.06 minutes while the sensor-intuitive pair is 45.67 minutes.

Table 5. Hypothesis Test Results with Mapping

Cognitive Style	N	Descriptive		Hypothesis	
		Mean	Std. Dev.	Sig	St. Eror
Panel A: Without Mapping					
Sensors Pair	16	525,31	158,907	0,026	67, 443
Sensor_Intuitive	15	680,00	196,214		
Panel B: With Mapping					
Sensors Pair	16	573,44	173,481	0,119	65,419
Sensor_Intuitive	15	680,00	196,214		

* Signifikansi pada level 0,05

Table 5 panel B shows that there is no significant difference between the sensor-sensor and sensor-intuitive group decisions (sig 0.119). This shows that the process of causal cognitive mapping has a different impact on the outcome of decisions when participants

process information more deeply and map the causal relationship of each information in decision making. Thus the bias generated from the information processing in the cognitive mapping sensor groups has decreased bias (debiasing).

Analysis of Conflict and Cohesiveness

At the end of the experiment session, participants were given a debriefing question, namely regarding conflict and cohesiveness in the team. It aims to see whether in addition to cognitive style, the level of conflict and team cohesiveness are factors that influence the performance of participants in group decision making. To test this, a covariate analysis was performed, which included the metric independent variable as covariate in the model. The aim is to reduce error variance by eliminating the influence of non-categorical variables (metrics or intervals) that we believe bias the results of the analysis. In this case the covariate variable is the level of conflict and team cohesiveness, while the independent variable is the cognitive style. Table 6 shows the results of covariate testing.

Table 6. Ancova - Production Decisions

Source	SS	df	MS	F	p
Main Effect					
Cognitive Composition	183437.145	2	91718.573	2.490	0.018
Covariate					
Task Conflict	4369.883	1	4369.883	0.119	0.731
Error	3463062.329	94	36841.089		

The Ancova test results in table 6 show that the composition of cognitive styles has an influence on production decision making (p = 0.018) while task conflict does not directly influence the production decision making process (p = 0.731). Thus testing hypotheses on cognitive style variables can be directly tested against production decision making.

Discussion

This study uses the Theory of Constraints (TOC) in developing research instruments. TOC is a management philosophy that helps a company increase profits by maximizing production and minimizing all relevant costs such as savings, direct costs, indirect costs, and capital costs. Experimental assignment scenarios relate to the constraints faced by participants when determining targets and performance in dilemmaticproduction decision making. The case scenario shows that the company is in a state of financial difficulties which causes one of the planned machines not to be operated. There are three production machines with different capacities that should be taken into consideration in making production unit decisions.

The results of studies in accounting and psychology suspect that different people will process information differently [4]. This dependson the structure of their knowledge, experience, and cognitive characteristics of a person ([5]; [3]; [6]). Likewise in this study grouping homogeneous and mixed cognitive styles to see if there are differences in production decision making between groups of cognitive style pairs.

Theoretically, the intuitive cognitive style is able to make decisions more optimally than the sensor style ([7], [3], [32], [33], [4] and [29]). This is because the intuitive cognitive style is more focused and concentrated on understanding meaning and relationships, exploring various possibilities, using hunches and speculation, and oriented to the future is also more theoretical approach. The research scenario shows the need for more in-depth considerations from participants regarding production constraints, financial considerations and consideration of limited production capacity.

The results showed that the performance of the sensor and intuitive pair is higher than the sensor and sensor pair which can be seen from themean value. Thus first hypothesis is supported. The results of testing of second hypothesis show that there is no difference in performance between the sensor-intuitive pair and the intuitive-intuitive pair. Theboth result of testing the hypothesis shows that intuitive cognitive styleis more capable of showing performance in complex decision making and requires a lot of consideration than cognitive sensor style. However,the bias or deficiencies that exist in the cognitive style of the sensor can be reduced through a debiasing tool, namely causal cognitive mapping tested. The results show no difference in performance between the sensor-pair pair with the sensor-intuitive pair when participants use the mapping model in decision making process. In this case participants are asked to consider all the possibilities that can be found to achieveoptimal performance through mapping the opportunities and constraints faced by the experimental scenario.

The results of this study imply that organizations will benefit from understanding both individual and group cognitive styles. This can be one of the considerations for many companies to test psychologically when recruiting and training their employees. The availability of information that will be managed by groups and individuals in their cognitive processes becomes one of the considerations that will help the organization in making complex decisions. Organizations or companies can manage groups to solve problems in the company. Weaknesses in groups with a homogeneous cognitive style can be overcome by providing more and more detailed information such as qualitative and quantitative information in the form of reports, graphs and others. In addition this becomes one of the challenges of a management control system designer for how to understand the differences that influence the use of information feedback contained in performance reports [4].

This research contributes scientific research into accounting by increasing cognitive style testing from the individual level to testing at the group level. This research builds unique instruments related to complex assignments for decision making. The instrument is built with complicated scenarios by providing data as well as limitations that will be considered by participants. The instrument was built with severaltests to produce the suitability of the cognitive style of decision makers. This instrument was also built by giving a time limit in decision making which was not done in previous studies [4].

Further research can be done in the form of more complex and unbalanced groups such as two sensors and one intuitive person or vice versa. This is to see the dominance of cognitive style in decision making. Future studies can provide target instructions and an incentive system that will be given to participants when they are able to achieve the targets set. In addition, researchers can then consider a number of moderation factors such as experience, abilities, and personal knowledge of the participant's cognitive style.

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3.4. Field Dependence Cognitive and Learner Aptitudes: Experimental Study on Accounting Student Performance

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ABSTRACT

This study aims to examine the influence of field independent (FI) and field dependent (FD) cognitive styles and learner aptitudes on accounting student performance. This matter to see whether individuals with higher cognitive skills (FI) have better performance when faced with structured, unstructured, familiar and unfamiliar problem solving. To test the hypothesis,an experimental design was carried out with accounting students as respondents. The results show that the performance of independent field students is higher than dependent fields when answering unfamiliar types of questions. While the performance of the two cognitive styles is no different when faced with familiar types of questions. For structured question types,student performance in independent fields is better than in dependent fields. However, it is no different for the type of unstructured questions.

Keywords: field independent (FI), field dependent (FD), learner aptitudes, performance

Introduction

Some reasons why some students are better at certain types of exam questions have long been an interesting topic for education. Theories used toexplain why some students will perform better on the types of questions thatare "direct" rather than "indirect", "structured" compared to "unstructured"or "familiar" compared to "foreign". In this study, researchers are interested in investigating how student performance when confronted with different types of questions not only at the level of structure but also in the context of familiarity. At the structural level, what is meant is the degree to which the requirements for the assignment are spelled out in questions (where unstructured questions will require students to identify problems and steps that needed for solutions). According to the context of familiarity, what is meant is whether students tend to recognize certain accounting situations or not, where students have been given the skills needed to solve problems thathave been taught before. This study attempts to test whether a student's cognitive style influences their performance on an exam that includes these types of questions.

Cognitive style is the preferred way for individuals to accept and process information, which in turn affects the way they conceptualize, store and retrieve information [1]. Some results of the previous studies indicate that cognitive style affects the auditor's decision and ability to detect corruption ([2]; [3]; [4]; [5], [6]). Cognitive style affects accounting decisions ([7]; [8]; [9]; [10]; [11], [12]). Cognitive style affects the performance of accountants and auditors ([13]; [14]; [15]; [16]; [17], [18]).

Preliminary studies linking cognitive problems with accounting student performance can be seen in literature reviews such as [19] who tested student performance on CPA exam questions using an "abstract reasoning" measure developed by [20]. The results show that students who have higher reasoning skills (classified as "formal-operational") perform better than those who have lower reasoning skills (classified as "concrete-operational"). These conditions occur when they are confronted with both questions that require higher reasoning skills and require more concrete skills (lower reasoning). The formal and concrete-operational term is used by [20] to describe the complexity of one's cognitive structure. Concrete-

operational individuals are oriented to the reality of a relatively concrete and real world that generally cannot consider abstract concepts that depart from that reality. In addition, his ability to carry out certain types of logical operations such as hypothetical reasoning, propositional logic operations, and reasoning about situations that are contrary to facts, is limited to people with concrete-operational. Those who have reached the highest level, called formal- operational, are able to understand concepts that depart from concrete reality, and reasoning is no longer limited toextrapolation from sensory experience. They are able to think of various possibilities and think of what is observed as a special case of various possibilities [20]. Further studies on cognition use the concept of cognitive complexity. Cognitive complexity is a term put forward by [21] which stated that "all people can be directed along a continuum from concrete to abstract, depend on their ability to distinguish and integrate information" [22]. [23] found that accounting students of all levels of cognitive complexity perform well on high- level "structured" accounting questions, but students with high levels of cognitive complexity significantly perform better on unstructured exam questions.

The study conducted by [24] reexamined the studied by [19] using the same reasoning instrument. However, the study ignored a significant problem, namely the lack of formal questions on the CPA exam (93 percent classifiedas operational concrete). The results show what is in line with the results of researched by [23] that all students, regardless of their level of reasoning, perform equally well on questions that do not require a high level of reasoning. But for those who have high reasoning abilities, they can performmuch better than those who have a level of concrete-operational reasoning when faced with questions that require a higher level of analysis. [25] also conducted experiments on Canadian students who sat for Uniform Final Examination (UFE) - equivalent to the CPA exam in Canada - using another test instrument namely ACCT1 proposed by [26]. The results confirm the same pattern, namely that candidates with higher levels of cognitive complexity achieve significantly higher scores on questions that tend to be unstructured than candidates with lower levels of cognitive complexity, but both groups achieve the same values on more structured questions. Based on the background and review of previous studies, the authors are interested in testing the effect of cognitive fields dependent and independent fields and learner aptitudes in accounting students. This is tosee whether individuals with higher cognitive skills have better performance when faced with unstructured problem solving and vice versa. In addition, the ability to perform in unfamiliar situations is also a function of cognitive skills.

Literature Review and HypothesisCognitive Style

The notion of individual differences in information processing goes back to classical times and regarding qualitative differences in thought, for example verbal versus visual were discussed by Fechner and Galton in the nineteenthcentury [27]. The difference in the way information processing is known as cognitive style. Many definitions and definitions are conveyed by researchers in this field. [3] explain that one's cognitive style refers to a person's specific way of obtaining, storing, retrieving and transforming information. Cognitive style is defined as a preferred approach and habits ofindividuals to organize and represent information [28]. Cognitive style is a characteristic model of observing, remembering and solving problems, reflecting the orderliness of information processing that develops in a pleasing way to the underlying personality tendencies [27]. According to [29], cognitive styles are individual differences in how they see, think, solve problems, learn, and relate to one another. This explains how a person processes and organizes information so as to arrive at an assessment or conclusion based on their observations of the situation. Cognitive style reflects 'how', not 'how well', we perceive and evaluate information. This emphasizes individual nature rather than cognitive ability,focusing on the 'preferred type' as opposed to 'the more the better' in psychometric measures such as IQ [30]. [29] argues that style is a broad dimension of individual differences

that stretches between perceptual and intellectual activity, and suggests four characteristics of cognitive style: (i) focus more on form than on learning content: (ii) encompasses dimensions that can be assessed in a manner non-verbal (i.e. perceptual through tests such as the Witkin test or the embedded figures test); (iii) stable all the time; (iv) bipolar.

Many different frameworks for describing cognitive styles refer to the cognitive dimensions of the researchers themselves, often without paying attention to other similar fields. [27] summarizes some of these cognitive style thinking frameworks. According to [31] reviewed more than twenty cognitive / learning style models, while [32] identified over thirty different descriptions. [33] identified twenty-two dimensions of cognitive style and commented that various dimensions of cognitive style and the development of empirical studies using different measures of cognitive style produce complex and confusing fields of science.

Field Dependency Cognitive Style

[29] distinguish two different cognitive styles, namely fields dependence consisting of fields independent (FI) and fields dependent (FD). Individuals with a field independent style tend to be analytical, able to determine their own structure of information and have an impersonal orientation. While individuals with a field dependent style understand globally, adhere to the structure as given and have a social orientation. Field dependent individuals have perceptions and information processing that is affected by the context in which they operate. This is the extent to which the organization dominates the perception of each of its parts. Field dependent relies on external perspectives while independent fields rely on internal perspectives. [33] suggest a number of implications of this field dependent- independent dimension, namely: (i) field dependents are more able to express themselvesand are sensitive on social; (ii) field independents better in academic achievement although this raises problems regarding the relationship between the field dependent-independent construct and ability, with some debate that it is a measure of ability versus style of measure; (iii) field independents have higher training abilities. From the perspective of human resource (HR) development, a number of studies have suggested that field dependent learners tend to be less successful in computer-based and self- instructional learning environments [34].

Several studies on the ability of auditors to detect fraud show that the auditor's cognitive style affects the ability of auditors to detect fraud ([3], [5], [2]). The study by [2] shows that field independent cognitive style affects auditor's ability to predict fraud that is higher than field dependent style. In contrast to the study by [2], the results of the study by [5] showed that there were no differences in the auditor's ability to predict fraud in both the field independent and dependent cognitive styles. The test by [17] results show that cognitive style significantly interacts with the characteristics of task types. Auditor analytics perform better on analytical task types than on intuitive task types. Auditors intuitive perform better on intuitive task types than on analytical tasks.

Accounting research that examines the effect of field independent / field dependent (FI/FD) cognitive style on accountants' decisions, the results are not able to show a significant effect (eg, [7], [13]; [8], [14]). In contrast to the results of study by [2] which examining the effect of FI/FD on audit judgment found that the cognitive style significantly affected the auditor's fairness presentation. Subsequent research was conducted by [6] with research similar to study [2] and found that FD/FI had no significant effect on the auditor's fairness presentation. [4] examined the cognitive style of FD / FI on auditor decisions related to the internal audit function. The resultsare consistent with study by [6] but not consistent with results by [2]. In other words the cognitive style of FD/FI has no significant effect on the auditor's decision results.

The research by [11] examines the combination of cognitive styles and usersor non-

users of two types of hypertext learning aid and their interactions on student performance in advanced financial accounting. The cognitive style tested was field independent-field dependent (FI/FD). The total number of participants was 107 fourth grade accounting students. One in three studentsdo not use learning aids at all, one does not use the basic version of learning aids (only solutions provided), and one in three uses a development version of learning aids (given solutions and derivatives of these solutions). The results show that for familiar exam questions, only study aids have a significant effect, and for unfamiliar exams, learning aids, cognitive styles and interactions both have a significant effect. For the two types of questions/exams, performance differs based on cognitive style. These resultssuggest that educators should be careful in designing and using learning aids.

Study by [12] investigated the effect of cognitive style (field dependence)on performance on different test questions in terms of familiarity and structure level. The cognitive style tested was field independent-field dependent (FI/FD). Participants involved were 160 students in the intermediate financial accounting class. This study found that the performance of students who were field independent was high at solving unfamiliar questions compared to students who were field dependent. There is no significant advantage for students who are field dependent when solving familiar questions. For unstructured questions, the results of this study indicate there is no significant difference between the performance of students who are field dependent and field dependent. While for structured questions, the results of the study showed that the performance of field independent students was better than field dependent students. The results of this study help educators to understand the role of cognitive style on students' ability for familiarity function and as a recommendation for The Accounting Education Change Commission. The results of previous studies indicate that FI and FD cognitive styles affect the performance of auditors in detecting fraud [35] and affect student performance in achieving budget targets [36].

The tool that can be used to measure or test field dependence cognitive is The Group Embedded Figures Test (GEFT) developed by [37]. The GEFT instrument is considered as one of the more established models and iswidely researched and continues to be used in the field of accounting [5]and other fields. The GEFT test is a way to find simple figures in more complex figures that are designed in such a way by inserting or hiding simple figures. The ability to find simple figures in complex figures reflects the ability to solve cognitive problems by isolating critical elements and using them in different contexts [11]). Individuals who are able to ignore complex environments and are then able to "see" simple figures in them are classified as field independent while those who have difficulty in finding simple figures are classified as field dependent.

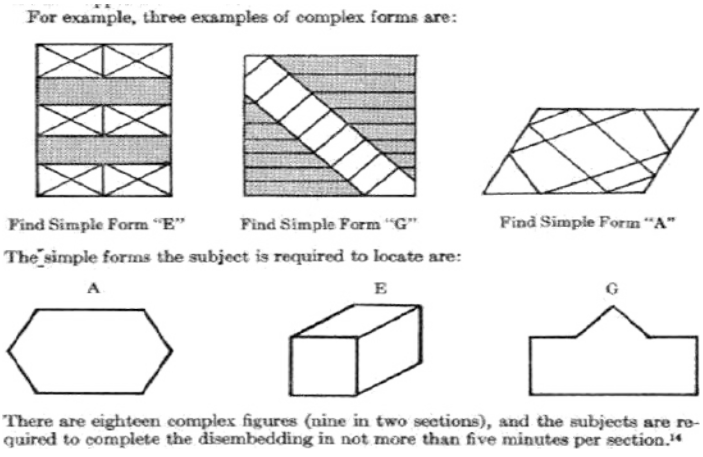

Figure 1.: The Group Embedded Figure Test (Field Dependence)

Learning Aptitudes

Many research has focused on student talent in an effort to understand how individuals approach problem solving. This is an important topic for research in the field of education. Professional bodies and government agencies around the world have expressed concern that students must be increasingly able to tolerate at a high level of ambiguity, and be able to play a role in an environment that is less purposeful and less structured [12]. For example, in 1989, the accounting firm "Big 8" argued that accountants were no longer properly trained to meet the challenges of advancing technology, mushrooming regulations, globalization of trade and complex business transactions [38]. The call for change by large companies for accounting graduates is to focusa lot of attention on the problem of how individuals understand and solve problems [12]. The study by [39] proposes that management accountants must be able to analyze and use intuition and be creative in using their cognitive skills when solving problems. In the UK, the [40] establishes a number of skills that students must possess, one of which is cognitive skills, such as an understanding of methodology or ability in critical analysis. In addition, [41] cautioned educators that the curriculum must also be taught inways that emphasize conceptual understanding not only through technical means.

Many educators and professional accounting bodies have long debated the use of "unstructured" material in accounting courses. [42] stronglyadvocates this approach, after writing a number of textbooks on the use of relatively unstructured case materials. The Canadian Chartered Accountant Institute (CICA, 1988) notes that there is a pretty interesting failure that the smartest and best individuals will have the thinking skills needed beyond traditional structured problem solving. In addition, Strategic Proposal #6 calls for the expansion of higher education entry requirements with advanced degrees to emphasize the development of thinking skills, interpersonal skills, and communication skills. In the United States, the Accounting Education Changes Commission (AECC) pointed out in Position Statement Number One (1990) that accounting graduates must possess the communication, intellectual and interpersonal skills that are important for professional accountants. Intellectual skills include the ability to "find, obtain, and organizeinformation" and the ability to "identify and solve problems" that are not structured in unknown settings and to make judgments based on an understanding of a series of facts that are not focused (AECC, 1990). This ability is very important for accountants and auditors if they want to be able to work with complex and unstructured problems, and to meet the challenges identified earlier by the "Big 8" accounting firm [38].

Research Development

Based on an understanding of the concepts of fields independent and field dependent cognitive styles as well as learner aptituted and reviewing previous research, it can be concluded that cognitive style is a factor affecting student performance in answering exam questions. The first hypothesis is built on the general concept of field dependency that individuals with field independent cognitive styles have higher performance than individuals with field dependent cognitive styles. This first hypothesisis built without considering the types of questions at both the level ofstructure and familiarity. The first hypothesis builds on the studies of [6], [43], and [11], whose research results strongly support the hypothesis that FIstudents will generally outperform FD students - in other words, the level of achievement for FI students is more high. Thus first hypothesis (H1) is stated as follows:

H1 : Students with a Field Independent (FI) have higher performance than Field Dependent (FD) cognitive style when confronted with all types of questions regardless of the level of structure or familiarity.

The next hypothesis examines student performance related to the level of familiarity of students on the exam questions. An unknown question is a question in which the context of the question has not been seen before, even though the individual has been taught the way needed to analyze it. On questions that are already familiar or familiar, individuals will have less difficulty in applying the correct analytical tools. This refers to the results ofthe studies of [11], [44], and [45] in [37]), which shows that the cognitive style of field indepenent (FI) has a far better performance than the field dependent (FD) when confronted with problems that require isolation of critical elements in a different context from those that have been presented. Thus it can be concluded that students with field independent cognitive style (FI) have better performance on unfamiliar questions than foreign students with field dependent cognitive style (FD). However, when faced with familiar question types, students with field independent cognitive style (FI) do not have special advantages compared tostudents with field dependent cognitive style (FD). This is because with familiar questions, the context has been equally well understood by individuals with field independent cognitive style (FI) and field dependent cognitive style (FD). As a result, FI's superior ability to isolate important elements in different contexts no longer applies [45]. Thus hypothesis 2 and hypothesis 3 are stated as follows:

H2 : Students with Field Independent (FI) have higher performance than Field Dependent (FD) cognitive style when faced with unfamiliar types of questions.

H3 : There is no difference in performance between students with the FieldIndependent (FI) and Field Dependent (FD) cognitive styles when faced with familiar types of questions.

The next hypothesis examines the role of students' cognitive styles on the types of questions with their level of structure in the exam. Unstructured questions tend to be presented unfocused: usually students are needed to identify problems and rank, and are forced to make assumptions. As a result,more than one solution is generally available with questions of this type, andthere is a high degree of ambiguity in them. However, the availability of literature related to field dependencies does not provide much clear evidence of differences in student performance with the cognitive style of FI and FD when confronted with questions that present varying degrees of structure. However, the study by [12] show that when confronted with structured questions, individuals with field independent (FI) cognitive style have higher performance than field dependent (FD). Thus hypothesis 4 and hypothesis 5 are stated as follows:

H4 : There is no difference in performance between students with the Field Independent (FI) and Field Dependent (FD) cognitive styles when faced with unstructured types of questions.

H5 : Students with Field Independent (FI) have higher performance than Field Dependent cognitive style (FD) when faced with structured question types.

Method

The subjects in this study were students of the Department of Accounting at a college in Palembang. Demographic variables that were asked were age, gender, courses taken, and GPA. Students are chosen as a proxy that can represent the performance of accountants in solving accounting problems. The data collection was carried out in an experimental laboratory that had been conditioned for conducting the experiment. This study uses an experimental design to investigate hypotheses. The design of the experiment uses two steps of testing. The first step taken by participants is to test the cognitive style of participant field dependent / independent.

The tool used was The Group Embedded Figures Test (GEFT) developed by [37]. The second step is that participants are given four types of questions (structured, unstructured, familiar and unfamiliar) in the test.

Hypothesis testing is carried out to test student performance on four types ofquestions, namely familiar, unfamiliar, structured and unstructured. Each question has two characteristics: the level of familiarity and the level of structure. This results in four combinations of questions: familiar / structured; familiar / unstructured; not familiar / structured and not familiar /not structured. To test H2 only one question that is not familiar from the four combinations of questions is needed. To get these unfamiliar questions,it is necessary to combine unfamiliar / structured questions and unfamiliar / unstructured questions by calculating the weighted average of answers. To test H3-H5, this process is repeated to derive familiar questions (using a weighted average of familiar/structured and familiar/unstructured questions), structured questions (using a weighted average of familiar/structured and unfamiliar/structured questions) , while for unstructured questions (using a weighted average of familiar/unstructured and unfamiliar/unstructured questions). To test H1, on average all four typesof questions are used. This study uses descriptive statistical analysis and independent sample t-test to test the research hypotheses.

Result

In this study, data obtained through the experimental method were used by participants in Accounting major who were proxied as production managers. All participants who took part in the experimental session totaled 160 people. In this experiment the researcher guides the participants in working on the stages of the experimental task so that the time spent can be efficient. The time needed to work on the entire set of instruments is 120 minutes. Table 1 shows the amount of data / instruments that can be processed in the study.

Table 1.

Data Collection Results

Cell			N	Mean
Field Independent (N= 94)	Theoretical Range: (9 - 18)	Structured	22	76,95
		Unstructured	25	70,28
		Familiar	20	80,65
		Unfamiliar	27	74,44
Field Dependent (N= 66)	Theoretical Range: (1- 9)	Structured	18	64,28
		Unstructured	15	71,33
		Familiar	20	77,65
		Unfamiliar	13	63,85

Table 1 shows that from the initial number of participants gathered 160 people. After testing the GEFT Field independent and field dependent cognitive style, 94 people were obtained with independent field cognitive styles and 66 people with field dependent cognitive styles. The theoretical range score for the FI cognitive style is 9-18 and the FD cognitive style is 1-9. This is measured based on GEFT which measures cognitive style with 18 questions testing the ability to determine the right picture. Each cognitive style is asked to complete tasks related to four types of questions, namely structured (40 people), unstructured (40 people), familiar (40 people) and unfamiliar (40 people).

Student performance with FI cognitive style and structured question types was 76.95 (22 people). Student performance with FD cognitive style and structured question types was 64.28

(18 people). Student performance with FI cognitive style and type of unstructured questions was 70.28 (25 people). Student performance with FD cognitive style and types of unstructured questions was 71.33 (15 people). Student performance with FI cognitive style and familiar question types was 80.65 (20 people). Student performance with FD cognitive style and familiar question types was 77.65 (20 people). Student performance with FI cognitive style and unfamiliar question types was 74.44 (27 people). Student performance with FD cognitive style and unfamiliar question types was 63.85 (13 people). The results of normality test data on student performance in completing or answering questions on four types of questions are normal. Student performance with independent field cognitive style showed a significance value of more than 0.05 (structured 0.119, unstructured 0.199, familiar 0.431 and unfamiliar 0.322). The performance of students with field dependent cognitive style showed a significance value of more than 0.05 (structured 0.635, unstructured 0.392, familiar 0.308 and unfamiliar 0.216). Thus it can be concluded that the student performance variable data in answering normal distributed questions.

Hypothesis Results

First hypothesis (H1) states that students with Field Independent (FI) style have higher performance than students with Field Dependent (FD) cognitivestyle when confronted with all types of questions regardless of structurelevel or familiarity. To test the hypothesis one (H1) it is used Independent Sample T_Test different test analysis tools with the help of SPSS (StatisticalPackage for Social Sciences) software. The test results can be seen in table2.

Table 2: Result of First Hypothesis (H1) Test Student Performance (Four Types of Questions) Based on Cognitive Style Difference

Cognitive Style	Descriptive			Hypothesis			
	N	*Mean*	*Std. Dev*	*Levene Test*		*Equal Variance Assumed*	
				F	*Sig*	*T*	*Sig*
Field Independent	94	75,24	13,055	0,449	0,504	2,493	0,014
Field Dependent	66	69,85	14,058				

Significance at level 0,05

Source: Output SPSS from Processed Data 2019

Table 2 shows that based on descriptive statistical data, participants with field independent cognitive styles numbered 94 people and had an average performance of 75.24 with a standard deviation of 13.055. For participants with a field dependent cognitive style amounted to 66 people and have an average performance of 69.85 with a standard deviation of 14.058. The t-testdifferent test results showed that the value of t at the equal variance assumedwas 2.493 with a significance probability of 0.014. Thus it can be concludedthat the average of student performance in completing assignments differs significantly based on the field independent and dependent cognitive styles for the four types of questions as a whole. Based on the results of these tests,it can be concluded that hypothesis one (H1) is statistically supported. Second hypothesis (H2) states that students with a Field Independent (FI) cognitive style have higher performance than students with a Field Dependent cognitive style (FD) when confronted with unfamiliar types of questions. The test results can be seen in table 3.

Table 3: Result of Hypothesis 2 (H2) Test Student PerformanceUnfamiliar Question) Based on Cognitive Style Difference

Cognitive Style	Descriptive			Hypothesis			
	N	*Mean*	*Std. Dev*	*Levene Test*		*Equal Variance Assumed*	
				F	*Sig*	*T*	*Sig*
Field Independent	27	74,44	13,751	1,231	0,274	2,326	0,025
Field Dependent	13	63,85	12,935				

Significance at level 0,05
Source: Output SPSS from Processed Data 2019

From table 3 it can be seen that the F calculated levene test is 1.231 with aprobability of 0.247. Because the probability is more than 0.05, it can be concluded that both groups have the same variance. Thus the t-test different test analysis uses the assumption of equal variance assumed. The t-test different test results showed that the value of t at the equal variance assumed was 2.326 with a significance probability of 0.025. Probability values below 0.05 indicate a significant difference in mean between the two test groups. Thusit can be concluded that the average student performance in completing assignments differs significantly based on independent and dependent field cognitive styles for unfamiliar questions. Based on the results of these tests, it can be concluded that hypothesis two (H2) is statistically supported.
Third hypothesis (H3) states that there is no difference in performancebetween students with the cognitive style of Field Independent (FI) and Field Dependent (FD) when faced with familiar types of questions. The test results can be seen in table 4.

Table 4
Result of Hypothesis 3 (H3) Test Student Performance (Familiar Question) Based on Cognitive Style Difference

Cognitive Style	Descriptive			Hypothesis			
	N	*Mean*	*Std. Dev*	*Levene Test*		*Equal Variance Assumed*	
				F	*Sig*	*T*	*Sig*
Field Independent	20	80,65	10,835	0,816	0,668	0,835	0,409
Field Dependent	20	77,65	11,873				

Significance at level 0,05
Source: Output SPSS from Processed Data 2019

Table 4 shows that based on descriptive statistical data, participants with field independent cognitive styles numbered 20 people and had an average performance of 80.65 with a standard deviation of 0.835. For participants with a field dependent cognitive style numbered 20 people and have an average performance of 77.65 with a standard deviation of 11.873. Levene test of 0.816 with a probability of 0.668 shows that both groups have the same variance. The t-test results showed that the value of t at the equal variance assumed was 0.835 with a significance probability of 0.409. Probability values above 0.05 indicate no significant difference in mean between the two test groups. Thus it can be concluded that the average student performance in completing assignments did not differ significantly based on field

independent and field dependent cognitive styles for familiar questions. Forth hypothesis (H4) states that there is no difference in performancebetween students with the cognitive style of Field Independent (FI) and Field Dependent (FD) when faced with unstructured types of questions. The test results can be seen in table 5.

Table 5: Result of Hypothesis 4 (H4) Test Student Performance (Unstructured Question) Based on Cognitive Style Difference

Cognitive Style	Descriptive			Hypothesis			
	N	*Mean*	*Std. Dev*	*Levene Test*		*Equal Variance Assumed*	
				F	*Sig*	*T*	*Sig*
Field Independent	25	70,28	13,381	0,112	0,740	-0,233	0,817
Field Dependent	15	71,33	14,573				

Significance at level 0,05
Source: Output SPSS from Processed Data 2019

Table 5 shows that based on descriptive statistical data, participants with field independent cognitive styles numbered 25 people and had an average performance of 70.28 with a standard deviation of 13.381. For participants with cognitive style of field dependent amounted to 15 people and have an average performance of 71.33 with a standard deviation of 14.573. The F value for the levene test is 0.112 with a probability of 0.740 indicating that both groups have the same variance. The results of the t-test showed that thevalue of t at the equal variance assumed was -0.233 with a significance probability of 0.817. Thus it can be concluded that the average student performance in completing assignments is not significantly different. Thus itcan be concluded that hypothesis four (H4) is statistically supported. Fifth hypothesis (H5) states that students with a Field Independent (FI) cognitive style have higher performance than students with a Field Dependent (FD) cognitive style when faced with structured question types. The test results can be seen in table 6.

Table 6: Result of Hypothesis 5 (H5) Test Student Performance (Structured Question) Based on Cognitive Style Difference

Cognitive Style	Descriptive			Hypothesis			
	N	*Mean*	*Std. Dev*	*Levene Test*		*Equal Variance Assumed*	
				F	*Sig*	*T*	*Sig*
Field Independent	22	76,95	12,195	0,388	0,537	3,166	0,003
Field Dependent	18	64,28	13,083				

Significance at level 0,05
Source: Output SPSS from Processed Data 2019

Table 6 shows that based on descriptive statistical data, participants with field independent cognitive styles numbered 22 people and had an average performance of 76.95 with a standard deviation of 2.195. For participants with cognitive style of field dependent numbered 18 people and have an average performance of 64.28 with a standard deviation of 13.083. The F value for the levene test is 0.388 with a probability of 0.537 indicating that both groups have the same variance. The t-test results showed that the value of t at the equal variance assumed was 3.166 with a significance probability of 0.003. Thus it can be concluded that the average

student performance in completing assignments differs significantly based on the field independent and field dependent cognitive styles for structured questions. Based on the results of these tests, it can be concluded that hypothesis five (H5) is statistically supported.

Discussion

This study provides additional literature by directly investigating the relationship between students' cognitive styles and their ability to solvedifferent types of questions in the context of familiarity and structure level. As predicted by theory, overall (without differentiating the types of questions), students with field independent (FI) cognitive style exhibit a higher ability than field dependent (FD) in answering questions. In testing specific types of questions, this study shows that students with field independent cognitive styles have significantly different performance than field dependent students for unfamiliar types of questions. As for the types of familiar questions, the results show there is no difference between field independent and field dependent cognitive styles. This of course contradicts theoretically. Therefore, the field independent cognitive style is not showing strength when faced with a type of task that is very recognizable / familiar, but provides many advantages when faced with a type of task that is not very recognized. Thus higher education shouldemphasize lecturers and educators to prepare students to deal with unfamiliar types of questions. This study provides some important input in understanding the characteristics of students as desired.

This study was not able to predict in advance how a student's cognitive stylecan affect performance in resolving structured and unstructured questions. This study observes that the literature is not conclusive which allows other factors to be more influential than cognitive styles in task completion. The results of the study regarding unstructured questions are consistent with the inconclusive literature review. The results of the study that are beyond prediction are on the types of structured questions, which are predicted that there is no difference between FI and FD. In the context of structuredquestions, the results of the study indicate that the performance of FI students is higher than that of FD. This is likely to occur because structured questions tend to have a large and integrated amount of information that is not beneficial for students with a cognitive style. Furthermore, there is the possibility of structured questions both familiar and unfamiliar types provide challenges that are not different for both FI and FD. Thus without considering both the types of questions that are familiar and unfamiliar, for the types of structured questions, the results of this study indicate that FI students have higher performance compared to FD.

The results of this study have implications for educators in colleges. The results of the study showed that students with field independent cognitive style had better performance in solving unfamiliar types of questions. However, this does not mean that students with a field dependent cognitive style do not have the possibility of good performance. Thus, additional skillsof knowledge, communication, intellectual skills, and interpersonal skillsare needed to become successful professionals. Students with fielddependent cognitive styles tend to have higher interpersonal skills than independent fields [29]. Ideally, students with identified field independent and field dependent cognitive styles can be given appropriate instruction according to their learning style. Such actions, however, are often economically incompatible with the financial conditions of most colleges. However, instructors should be aware that accounting students exhibit different learning styles, and therefore each must have the opportunity to answer exam questions that fit their particular talents.

There are limitations to this study as with almost all experimental studies. This research is only conducted at one colleges which may not obtain the same results. Furthermore, studies depend on accurate categorization ofquestions into four types - familiar, unfamiliar, structured and unstructured. It may be that there are several other factors that affect performance on questions that are not tested from research. Future studies may be able touse different question classification schemes that might produce different results. Future research can explore

structured exam questions and, especially, unstructured and what drives different results for students with field dependent cognitive styles. Future researchers can also use other cognitive style measures such as Cognitive Styles Analysis [32] or ACCT [26]. This can be used to determine whether the type of cognitive style affects performance on this type of examination question. In addition, further research can use another classification scheme of exam questions that must be completed by accounting students.

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BAB IV
PENUTUP

Buku ini membahas salah satu aspek psikologis yang penting dalam proses pengambilan keputusan. Keputusan yang diambil baik oleh individu dan kelompok oleh profesi apapun akan dipengaruhi aspek psikologis tidak terkecuali oleh profesi di bidang akuntansi seperti auditor, akuntan, investor, pendidik dan mahasiswa akuntansi. Aspek psikologis tersebut salah satunya adalah gaya kognitif. Gaya kognitif merupakan salah satu aspek akuntansi dalam penelitian akuntansi keperilakuan. Aspek-aspek tersebut dapat ditinjau dari berbagai sudut pandang yaitu antara lain untuk menilai reaksi individu terhadap informasi laporan keuangan. Gaya kognitif seseorang mengacu pada cara khusus seseorang dalam memperoleh, menyimpan, memperoleh kembali dan mentransformasi informasi (Ho dan Rodgers 1993; Kogan 1973). Informasi dari proses akuntansi berupa laporan keuangan akan menimbulkan reaksi psikologis dari pihak-pihak yang berkepentingan terhadap informasi laporan keuangan. Dalam ranah akuntansi keperilakuan adalah pihak-pihak yang terkait dalam proses pengambilan keputusan akuntansi antara lain auditor baik auditor internal maupun auditor eksternal yang merupakan salah satu pihak yang berkepentingan terhadap informasi laporan keuangan untuk menilai apakah laporan keuangan telah disajikan dengan wajar. Selain itu dapat juga meneliti pada akuntan, investor, kreditor, manajemen, mahasiswa akuntansi dan lain-lain. Penelitian pada subjek-subjek tersebut telah banyak dilakukan baik didalam maupun diluar negeri.

Hasil penelitian sebelumnya menunjukkan bahwa gaya kognitif mempengaruhi keputusan dan kemampuan auditor dalam mendeteksi *fraud* (Bernardi 2003; Mills 1996; Bernardi 1994; Ho dan Rogers 1993). Gaya kognitif mempengaruhi keputusan-keputusan akuntansi (Lusk 1973; Benbasat dan Dexter 1979; Chenhall 2004; Emsley dan Chung 2010;

Jones dan Wright 2010, 2012). Gaya kognitif mempengaruhi kinerja akuntan dan auditor (Lusk 1979; Benbasat dan Dexter 1982; Vaassen *et al.,* 1993; Cheng *et al.,* 2003; Fuller dan Kaplan 2004, Bryant *et al.,* 2009). Untuk Indonesia beberapa penelitian telah dilakukan, hasilnya menunjukkan bahwa gaya kognitif secara signifikan mempengaruhi kinerja mahasiswa akuntansi, mempengaruhi auditor baik auditor internal maupun eksternal baik secara individu maupun kelompok dalam proses pengambilan keputusan. Dengan demikian, pemahaman auditor dan profesi lainnya dibidang akuntansi terkait pentingnya peran gaya kognitif dalam proses pengambilan keputusan dapat mengarahkan individu atau kelompok untuk lebih rasional dalam mengambil keputusan.

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