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# **Educational Accountability and Business Education—Who Is Accountable?**

by  
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In 1969, the *Washington Post* said that education was entering the age of accountability. In fact, during the decade of the 1970s and early 1980s one could scarcely pick up any type of educational material without being faced with the term “accountability.” Additionally, this term was the topic of many conversations between members of the business education profession. There was no end to the discussion on the subject.

At all levels of academia, there was a consistent move toward the improvement of accountability. College and university professors and administrators, and cooperatives were compelled to address the concerns expressed by various publics relative to results attained by students coming from our educational institutions.

Now, fifteen to twenty years later, there is still concern about the abilities of students coming from our programs. In the business arena, for example, one of the major complaints coming from corporations is about the lack of communication skills of their employees.

The purpose of this paper is to discuss educational accountability from an historical point of view and to determine where business education fits in and who should be held accountable for our students.

## **What is Accountability**

Many questions were asked about the “exact” meaning of accountability. There did not seem to be a universally accepted definition.

According to Wynne (1972), the “term *accountability* has its roots in business practices. Numerical accountability concepts have several thousand years of business history behind them.” When the dictionary definition is applied, accountability could mean one thing to one person and another to someone else. According to Webster’s Third New International Dictionary (1985), *accountability*, a derivative of the term *accountable*, is (1) subject to giving an account: ANSWERABLE. (2) Capable of being accounted for: EXPLAINABLE. Considering that definition, we find support for the contention of a meaning suitable for the “purpose” of the user.

The December 1970 issue of *Phi Delta Kappan* is cited for its editorial on the subject of accountability. That editor contended that school people were being pushed to associate the word [accountability] with a specific, limited notion or responsibility, namely, holding the professor responsible for improving the arithmetical and reading scores of the students in the class.

Combs (1972), defines accountability in human, professional terms, setting forth in criteria form a new and more useful conceptualization in terms of behavioral objectives. According to Combs, “A truly comprehensive approach to accountability must take into consideration all aspects of affecting the outcomes of schooling, using each for what it can contribute to the total picture, and with full recognition that all are related and all are required.” John Porter must be given credit for the most appropriate and useful definition of the educational aspect of accountability. In 1971, Porter said that,

“Accountability is the guarantee that all students, without respect to race, income, or social class, will acquire the minimum school skills necessary to take full advantage of the choices that accrue upon successful completion of public schooling, or we in education will describe the reason why.”

### **Who is Responsible?**

If we, as college and university professors, take Porter’s statement for its most sound value, we can say that we are responsible for upholding the “terms” of that “guarantee.” We, to some extent, are responsible for the educational future of each student who enters our classrooms. It must be remembered, however, that the professor is not the sole person to be held accountable. There is the student, the administrator, the parent, and the community as a whole. There might be those who would argue the order presented. This paper, however, is not to say whose responsibility comes first, only to say that we all are to be held accountable for the education of our students.

Now, one might ask, “What do you mean when you say the student . . . , the parent . . . , the administrator, and the community



are all accountable?" My response to such a question would be along these lines, "Is it not the responsibility of the student to put forth an effort to learn what is being taught? Is it not the responsibility of the parents to make some type of assurance that the child does, in fact, attend school? Is it not the responsibility of the administrator to adequately staff the classrooms, to provide necessary resources for relevant instruction as well as insure relevant curricula offerings? Is it not the responsibility of the community to insure that the institutional system is adequately governed by a body that is adequately represented by all relevant segments of the community? Is it not the community that elects political officials that will govern the entire system in terms of financial support?" All of these people should have the total interest of students and their educational well-being as their top priority goal.

For all general purposes then, accountability is merely, "responsibility" shared by all involved in the total educational system.

### **Background**

Our changing society, disenchantment with the schools' desire for school alternatives, and a cost benefit factor all contribute to the educational phenomenon of the 1970s known to all of us as "accountability."

Based on the number of citations by others, the progenitor of educational accountability is Leon Lassinger. Educational accountability, according to Lessinger (1970), involves promises and the fulfillment of promises on the part of both educators and students—as well as others in the system, such as administrators. Further, Lessinger tends to equate accountability with performance contracts, as evidenced by a passage from his 1970 article,

Accountability is the product of a process. At its most basic level, it means that an agent, public or private, entering into a contractual agreement to perform a service will be held answerable for performing according to agreed upon terms, within an established time period, and with a stipulated use of resources and performance standards. This definition of accountability requires that the parties to the contract keep clear and complete records and that this information be available for outside review. It also suggest penalties and rewards; accountability without redress or incentives is mere rhetoric.

Accountability is a concern of everyone in the educational process. Earlier societies placed full responsibility on the teacher and the institution and left the students unaccountable. Today, we contend that the attainment of success in the classroom is a function of both the student and the teacher. Therefore, placing the responsibility on both parties.

### **The Teacher and Accountability**

In general, teaching is the heart of education, and throughout history the teacher has been held accountable to some extent. For example, there was always the possibility of the teacher getting fired for some reason or other. Previously, the teacher was considered to be the trained expert responsible for transmitting a broad base of knowledge to a group of students. To a great extent, the focus of educational accountability has changed. No longer is society concerned with only teacher inputs, we now look at teacher outputs. According to Gene Glass (1972), society makes the teacher responsible (accountable) for the students' success or failure in school. We, therefore, see accountability as a system or process for rewarding teachers according to their students' performance.

*Motivation.* Society wants teachers capable of stimulating and motivating students to learn. The teacher's input often affects the students. It has been confirmed that if students are not motivated, few of them think or learn. Thus, we posit that motivation is a key responsibility of every teacher. Motivation of student involves creating self-confidence in each student and making each one aware that he or she is a responsible human being capable of achieving set goals.

*Good or bad teachers.* Now we come to the question of whether a teacher is "good or bad?" It has been said that good teachers are born and not made. In a given situation or setting, a "good" teacher may perform badly. If morale is low, poor leadership, stressful disciplinary situations, and lack of adequate training facilities and equipment exists, we have the ideal setting for poor or nil results in teacher output. Teachers should be held accountable for only those educational outcomes that they can affect by their actions or decisions.

Situations such as the ones just mentioned have a tremendous impact on teachers, especially in the case of first year teachers, and therefore, should be considered before labeling a teacher "good" and "bad."

*To whom is the teacher accountable?* The teacher is responsible to others beside the student. A proponent of this concept was Henry Dyer. In 1973 Dyer developed a model, shown in Figure 1, where he contended that teachers are accountable to "a single designated superior," the institution's administrator (or someone else in a superordinate position—department chairperson, etc.), as well as three groups of people "who can and often do wield a great deal of direct power over him or her. These are the students, their parents, and the teacher's fellow teachers."

### **The Student and Accountability**

If business education is to be successful, the responsibility must also be borne by the students. The students must be made to understand

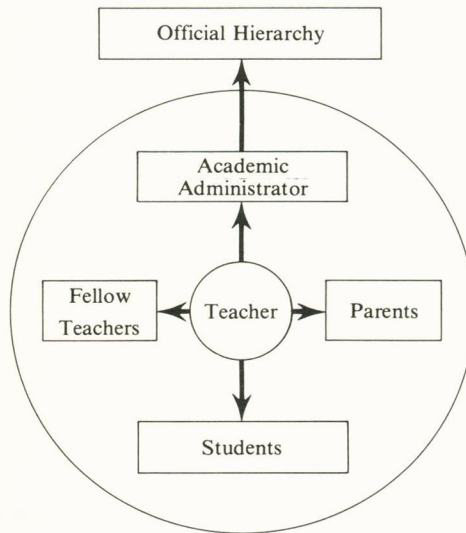


Figure 1. Persons to Whom a Teacher is Accountable

that education is something that will continue throughout life and is largely an individual responsibility under one's own control. Leight (1973), said that "students are rarely called 'accountable,' but they handle most of the resources for education. They use books, buildings, and teachers. And most importantly, they handle their own potential for learning."

A student must (1) find enough time to study; (2) make an effort to understand what is heard; and (3) know what is expected by the teacher. Students have a choice in the actions they choose, therefore, they are accountable. They are to be held responsible only for those actions for which they have control.

Additionally, students should understand that they have a right to be a part of the accountability process. The student should feel that personal responsibility is an aspect of curricular experience. According to Terrel Bell (1973), "students' rights should not be overlooked, or slighted by the governing body.

### **The Administrator and Accountability**

Administrator accountability is of utmost importance to society. Parents, students, taxpayers, and legislators have the right to know why certain things are being done, and hold administrators responsible for the success or failure of the educational programs being offered at our institutions.

The educational administrator is accountable to the faculty, students, administration, governing boards, the community, and the educational



profession, in general. But, first and foremost, administrators are accountable to themselves.

Administrators could use the management philosophy developed by Luther Gulick as a guide to the successful operation of their programs. In 1936 Gulick proposed "POSDCORB" as a means for answering the question of administrator responsibility. POSDCORB is composed of these functions:

- P lanning
- O rganizing
- S taffing
- D irecting
- CO ordinating
- R eporting
- B udgeting

Although Gulick designed his model primarily for management functions, the structure encompasses the responsibilities of the educational administrator.

Administrator accountability encompasses many facets. Regardless of the level of responsibility, degrees of accountability vary. Administrators, past, present, and future, must realize that their actions and behavior patterns reflect accountability.

### **The Parent and Accountability**

One might see the parental role in educational accountability as menial, especially at the post secondary school level. Parents are often seen as selfish individuals, for seldom do we hear them speak in terms of "our educational institutions," "our children," and "our teachers," instead, we hear them saying such things as "my child," "his school," "her teacher," etc. These terms are selfish. Parents should be thinking of *all* children and therefore be held accountable for parental inputs into the educational system.

Generally, we tend to think that parental accountability begins and ends with sending the child to an educational institution. This idea, however, is not the case. The parent is as accountable as the teacher for the output of the student. Parental involvement should not end when the child completes high school. Parents should be obligated to give their children a basic education that includes at least a community college degree. After ensuring that their children have an opportunity for post secondary schooling, parents should be concerned with the overall institution, not just the athletic teams.

Parents should be responsible for holding the teachers and administrators accountable for the progress or lack of progress of their children. And, not to be forgotten, parents are accountable to their

children. How often have parents today (yesterday's children) said of their parents, "we owe them nothing, but they owe us everything, we didn't ask to be here." Children today have the same ideas and thoughts about their parents. The basic contention about parental accountability can best be summed up by citing John Riddel (1977),

We parents have fought long for the participation of teachers and parents in educational decision making. We are in the process of achieving this aim. The responsibility on us is enormous. We are standing *in loco infantis*.

### **The Community and Accountability**

When Jones (1977) presented a "national viewpoint" of educational accountability, the contention was that, "Accountability denotes both an obligation and an effective discharge of that obligation." In order to fulfill this obligation, the community and its members are held accountable. This "community" is made up of our *parents, students, professionals*, and all who live in the area served by the school. These people are taxpayers who support the school and are responsible for its upkeep. When communities hold themselves responsible for the nature of their schools, they are being accountable.

It has been said that those in power are influenced by community needs and community demands. Education is certainly one of the demands of the community. As accountability is closely related to politics, politicians of the community have a tremendous amount of input in the structure of the education system. Politicians are obligated to the people who elected them, thus, accountability.

### **Business Education and Accountability**

Since "accountability" is such an elusive concept, our basic obligation is to determine how it is to be used. When thinking of accountability, three specific questions must be asked, to whom? for what? and by what means? There is no difference between business education and any other academic area. When thinking of business education and accountability, it must be addressed the same way as any other area.

As business educators, we are responsible for and must be held accountable for our actions in preparing our students to function well in a highly technological society. We have a responsibility to recognize the larger context in which our programmatic offerings exist and to understand the social, economic, and demographic changes of the "real" world.

As business educators, we are accountable to our students, our publics (the businesses and organizations where our students are hired), our administrators, our peers, and to ourselves.



We are accountable to our students for the content and structure of the materials covered in our classrooms. No longer should our students bear the brunt of criticism and complaints from corporate America for the lack of skills and training of their employees.

We can work with our administrators to make sure that curricular offerings are adequate for today's highly technological society. According to the Policies Commission for Business and Economic Education in its Policy Statement No. 41, (1987),

Since business organizations are dependent on well-prepared workers, the strength of the nation's economy lies in the work force. With qualified, productive employees, business can function effectively, and the country can maintain a competitive posture. Because business educators are charged with the responsibility of educating a large segment of the work force, the quality of business education at all educational levels directly impacts the well-being of the business community.

If we are to be held accountable for our role in educating the work force, one way to do so is to work with our administrators and our publics to make sure that our students have opportunities to experience "real world" situations through internship placements. Our students can also benefit from the wealth of information, skills and knowledge gained by faculty members who have had internship experiences in businesses and organizations.

We are accountable to ourselves for the amount of emphasis placed on professional readings, meetings, and research. Teachers are obligated to remain current on trends, issues, and innovative practices.

### **Summary**

Is "Every Student a Winner" as Lessinger indicated in his book, *Every Kid a Winner: Accountability in Education?* Are we being held accountable for the education of our students? Lessinger contends that "the first exercise in accountability must center on the care and nurture of our children." Are we concerned about this caring and nurturing, or are we putting more emphasis on the economical and political functions and less emphasis on academic excellence? To those proponents of accountability systems, educators must think of the student and his/her ultimate success in the world. Supporters of accountability contend that "accountability involves far more than the reduction of educational cost." To them, according to Chippendale (1975), accountability is based on the contentions that "education is also concerned with the cultivation of knowledge, attitudes, states of minds and modes of thinking which are valued by society . . ." It is, therefore, a means to an end whose fundamental purpose is to optimize the relationship between resources and results.

The many speeches given and articles and books published during the 1970 and early 1980s on the subject of accountability indicated a national interest in responsibility of the school society as a whole. However, the concepts of accountability is not new. We have always been held accountable for our actions in the classrooms and the final outcome or our students in employment situations, in advancement in the academic world, and the like.

Based on the ideas presented there, it appears that our educational arena is actually a system composed of students, teachers, administrators and community members subsequently working towards achieving pupil excellence through some type of specified performance and behavior objectives. Basically, we look at our input—what and how we provide for academic excellence through our teaching—and examine and evaluate our output—what accomplishments were made by the students and how effectively they implement and utilize ideas and concept presented in the classroom, via some specified measuring instrument.

The entire student population is considered in the accountability system. Knezevich (1975) points out that “education is properly perceived as a class of social goods that benefits all society and not a strictly consumption of goods that benefit only individual students and/or their parents.

The word “accountability” implies a pattern of responsibilities between school administrators and citizens. If “accountability is based on specifications of desirable and measureable outcomes, the assignment or responsibilities for the achievement of objectives, and subsequent assessment,” then accountability must stress results, and be aimed at the educational outcome (output) rather than what goes in (input).

In 1972 Lovett wrote that,

The question of who is accountable to whom may come to the point where mutual trust and respect on the part of community, supervisors, and teachers will allow for an effective sharing of responsibility, and each will acknowledge that it is inevitable accountable to the others and can neither monopolize nor evade its part.

Based on the findings of this study, one can see that no one person or group is responsible for accountability. For accountability to be successful, all components of the system must work together and pull in the same direction. There can be no deviations from the basic idea of shared responsibility. As stated in the Policies Commission for Business and Economic Education Policy Statement No. 41 (1987), “Together we can achieve educational excellence; together we can make a difference by strengthening business education and assuring continued availability of a competitive, productive work force.”



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## The Victorian View of Women: A Portrait of Middle-Class Submissive Wives

by  
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An examination of the prevailing middle-class view of Victorian Women in 19th Century England reveals carefully and intricately delineated roles of women as grossly inferior or subordinate creatures who must be taken care of and dictated to by men—first, as fathers and, subsequently, as husbands. Victorian middle-class women, almost from birth, were made to feel less than men, a position which rendered the weaker sex purposeless and dependent. Although in many cases, women's natural intellectual abilities surfaced, they were either ignored, denied, or ridiculed. English law documented and upheld the inferiority of women, physicians relegated them to lives as pitiful invalids, fathers demanded that their daughters both respect and revere their husbands and brothers, mothers groomed their daughters for early "acceptable" marriage, and husbands sought academically illiterate and dedicatedly submissive wives as ideal companions.

Middle-class Victorian women trapped in this undesirable situation had no way out. They were neither trained for outside employment nor allowed to seek such training. As a matter of fact, women were taught "that there was difference in tone between the male and female mind. The male mind was creative, with an ability to produce original thought and artifacts of great artistic mastery that in a chosen few amounted to genius. The female mind was essentially imitative, and at



its best incapable of the heights to which men could aspire” (Robotham 114-115). Clearly, then, women’s duties were within the family. The outside world was a man’s world, one in which females were forbidden to enter. Those few women who dared to reveal assertiveness could give up all hope of marriage, for no man wanted a wife who held untraditional perceptions of her roles in society. In short, Victorian women, in life, were replicas of their literary counterparts . . . “submissive and repressed, or, if independent and assertive, mad and bad” (Honic 3). Rather than suffering the consequences of their actions, even the most assertive-minded women took pride in being characterized by “four cardinal virtues—piety, purity, submissiveness, and domesticity” (Welter 21).

In her discussion of four significant myths that men hold about women (and which many women accept as truth), Paula Caplan outlines statements that typify the traditional Victorian view of women:

1. Males are better than females (with the corollary that females, naturally, wish they were males);
2. Females are naturally tidy, careful, physically graceful and inert, and do not wish to venture far from home;
3. Females are so emotionally needy that they will drain everyone around them if allowed free rein;
4. Females are naturally, endlessly nurturant (and, therefore, should do nearly all of the child-rearing). (23)

With the stamp of approval by English law, professionals, and husbands, even the general public believed in male superiority (Caplan 24). To this end, the early and later educational training of women was carefully designed and implemented. Women became submissive wives, and men reveled in their role as ultimate ruler of both the business and domestic worlds. In this role, Victorian men fostered the miseducation of young girls and young women as a means of ensuring the development of future wives who were sufficiently weak in body and mind to assume the subservient roles defined for them by men. Consequently, women spent a substantial amount of their leisure hours “those not taken up by household or community duties, in practicing her drawing-room accomplishments in order to reach the maximum standard her abilities allowed” (Rowbotham 39).

Pat Jalland emphatically delineates the prevailing role of women:

Females were seen as ordained by God to be dutiful wives and mothers, guardians of the home and family.....The expectations of young girls growing up in Victorian Britain were circumscribed by these dominant ideas, which they assimilated from childhood. Their mothers were their role models, since their brothers were treated differently and their fathers’ lives were remote. The vast

majority of middle-and upper-class women did not question the conventional wisdom of 'separate spheres' and the translation of female gender into domesticity. (7-8)

Physicians' advice manuals and medical books gave detailed information and instructions relevant to the proper methods of raising females to be representative women and wives. Thus, education was focused on reproductive rather than intellectual ends. A popular philosophy was that such focusing averted supreme suffering of the human race, which certainly would have occurred if women had been given a classical education, the kind that their brothers received (Jalland 8).

Young girls spent many years under the supervision of governesses who were often limited in both their knowledge and ability to teach as well as their social status and positive attitudes. For these reasons, young girls lost whatever enthusiasm they had and became unreceptive to formal education. According to Jalland:

The long-term results of this haphazard and inadequate female education were the product of accident as much as individual talent, environment, and training. Scholars . . . considered an abysmal education adequate for their daughters, while their sons went to public school and university. These parents saw no reason to develop their daughters' intellectual potential in any structured manner since the daughters were destined to become dutiful wives and mothers. For girls without a formal education or alternative career prospects, their future life was entirely determined by their particular experience of courtship, marriage, and motherhood. (17)

Therefore, mothers did everything possible to groom their daughters for lifetime marriages as submissive wives. To do anything less would "doom" their offspring to lives of spinsterhood and disgrace.

Families began preparing girls for marriage at an early age. Girls were taught that a woman's place was in the home, not in the outside world where men fought their daily battles with business competitors. They were groomed to value leisure and to scorn those who did not have it. In short, they were taught the social "graces" necessary to attract a man for marriage. Their plight is aptly described by Foster: "Taught that a husband was essential to their existence, and all of their training directed to the art of catching one, they had the choice of being relegated to the ranks of abnormality if they did not marry, or being forced into what was regarded as degrading sexual competition, in which the losers faced economic hardship as well as social obliteration" (7). Consequently, Victorian girls, as they matured and approached the marriageable age, had little freedom. During the earlier years of



schooling, girls were allowed to participate in parlour games, picnics, and boating parties, but once they left the school room behind, their freedom vanished. Specifically, Margetson states that the Victorian girl:

. . . became a young lady, bound by a code of behavior as tight as the stays she was compelled to wear and stuffy as the innumerable petticoats she put on to stiffen her crinoline skirt. With her hair in ringlets and her feet in dainty slippers, her waist pulled in and her skirt on the ground, her physical movements were closely restricted. She might enjoy a game of croquet, where the starchy eye of the chaperon could sometimes be dodged and a word or two whispered in confidence between the sexes; otherwise, all opportunities of talking to a man without the constant supervision of an older relation were hard to come by. And although young ladies everywhere had leisure enough—more than they knew what to do with—their occupations did not fill their minds, yearning wistfully the taboos of a society growing evermore strict and conventional. (99-100)

Since young ladies were preoccupied with thoughts of marriage and since society endorsed it, they, too, were educated to become acceptable, prospective brides. The attitude that women had no intellectual ability was evident in the education women received as young adults. Beauty was taken to be woman's contribution to society and intellect man's (Rorabacher 16). Women were depicted as being substantially inferior to men in every conceivable way, including in physical strength, and marriage was the only career in Victorian society that was indisputably open to women. Thus, female and male roles were distinctively different:

Man for the field, and woman for the hearth  
 Man for the sword, and for the needle she;  
 Man with the head, woman with the heart;  
 Man to command, and woman to obey;  
 All else confusion. (Tennyson 105)

For this kind of union to work, it was imperative that the wives accept the premise that they were inferior to their husbands. To this end, women were not allowed to enter into practical or mentally stimulating exchanges. They were only "expected to possess or cultivate sensitivity or interest in 'culture' . . . As long as a woman's artistic interest and performance were leisurely (not paid), she could call herself a lady" (Nunn 5). Accordingly, women were taught:

To do exquisite embroidery, but not to make their own dresses, to paint wax or shell flowers, to gild plastic casts, to learn how to walk gracefully, to learn Italian because it was useful for

singing—and singing was an accomplishment that no young lady could neglect, as if, according to an ancestral idea, the chief task of a woman was to restore the hunter or warrior on his coming home from his hard day; in a word, . . . women were taught everything in the inverse ratio to its importance. (Praz 78)

Clearly, women were programmed to be nothing more than brainless robots who were educated just enough to do society's bidding: win husbands, bear children and make pleasant homes. In essence, women were "either drudges or toys beneath man, or a sort of angel above him" (Altick 54-55). They were content to be good, sweet, senseless, and obedient, but married. In fact the *raison d'être* of middle class Victorian women was to get married:

Their object was to find a husband and their appeal to the opposite sex was judged by their seeming air of innocence and genteel accomplishment. The less they appeared to know, the more attractive they were. Men looked for ignorance in their wives, not for intelligence, for a sentimental purity and submissiveness, not for character or excitement. (Margetson 99-100)

Just as the extent of women's education was carefully outlined and followed, so were their duties as wives and mothers. At the beginning of the nineteenth century, Victorian women's specific duties were to

. . . tend with patient assiduity around the bed of sickness; to watch the feeble steps of infancy; to communicate to the young the elements of knowledge; and bless with their smiles those of their friends who are declining in the vale of tears. (Praz 77)

A prevailing concept of "refinement" demanded that all women outside the working class abstain from gainful employment. This encouraged women to become virtually useless. According to Altick,

Theirs (Victorian women's) were lives of elaborate idleness; they worked harder at being decorative than any other productive occupation would have required. They passed their days indulging desultorily in the 'female accomplishments' learned in girlhood, needlework, making boxes from shells . . . sketching and water-color painting, flower arrangement, strumming at the piano or harp. Their only faintly constructive deeds, apart from supervising the household staff, involved charity—taking blankets and basins of soup to the unfortunate on the estate, visiting the local school the family supported. . . . Leisure was a sign of status, and in the middle class it was occupied as unproductively, in most cases as in fashionable society. (51-52)

Generally, women were thought of as mediatory agents dedicated to



preserving the home as a refuge from the outside world, cultivating fragility, and placing total dependence on their men. In actuality, however, they were dolls living in doll houses. Yet, this condition, although problematical, was salve to the suppressed feelings of Victorian women, and keeping up appearances was of greater importance than expressing their own likes and dislikes or making quality contributions to society. Thus, most Victorian women were totally submissive to their husbands, and they accepted, meekly, the roles assigned to them by Victorian society. It was Victorian women's duties to submit to their husbands and to bear one child after another—often as many as a dozen or more—without complaint, regardless of the effect on their health:

Motherhood was the sacred function of the female species. Lying on the sofa, expecting or recovering from the event, the wives had plenty of leisure to reflect with satisfaction on what they had achieved and if their husbands sometimes sought pleasure on the side, they could take shelter under the convenient umbrella of belief that God made man a more promiscuous creature than woman. It was only when woman saw her husband making a fool of himself that she found it difficult to control her displeasure and not to show by her manner what she was feeling. (Margetson 121)

This concept reflects Theophilus Moore's description of a good wife as

One who, ever mindful of the solemn contract which she has entered into, is strictly and conscientiously virtuous, constant, and faithful to her husband; chaste, pure, and, in every thought, word, and deed; she is humble and modest from reason and conviction, submissive from choice, and obedient from inclination; what she acquires by love and tenderness, she preserves by prudence and discretion; she makes it her business to serve, and her pleasure to oblige her husband; conscious that everything that promotes his happiness must in the end contribute to her own: her tenderness relieves his cares; her affection softens his distress; her good humor and complacency lessen and subdue his afflictions. (46-47)

A good wife is blessed with a good husband who

Treats his wife with delicacy as a woman, with tenderness as a friend: he attributes her follies to her weakness, her imprudence to her inadvertency; he passes them over, therefore, with good nature, and pardons them with indulgence; all his care and industry are employed for support and protection . . . (Moore 46-47)

Although this idealized view of Victorian women was widespread, it was not the only existing conception. Basically, there were three

conceptions of nineteenth century women: woman, the inferior, bound to obey her husband, and created for the purpose of serving him; the new woman who revolted against the chains of law which bound her to the hearth, and demanded political, educational, and economic equality; and the separate-but-equal woman, accorded a certain amount of liberty but still bound to the hearth and to her husband's will, and still protected from politics, higher education, and the world of affairs because of her separate but respectable function as domestic goddess and protector of society's moral and spiritual integrity (Houghton 348-356). Of the three conceptions, the best known and most widely acclaimed was that of the submissive wife.

Because unmarried women were ostracized by society and considered to be failures, when unmarried women began nearing thirty, their parents became increasingly concerned about marriage. They knew that without it, their daughters had nothing to look forward to, except a long tunnel of diminishing returns:

Women embarked on marriage in a welter of prescriptive contradiction. Told in song and ceremony that they were entering a heaven in which they might expect worship, power, and adoration, women . . . were consigned through marriage to a civil purgatory, an indeterminate status in which they were virtual non-persons in the law. Barred from making contracts, bearing witness in court, and initiating lawsuits, they could nevertheless be prosecuted for most criminal offenses. (Hellerstein 161)

Therefore, it is understandable (while also contradictory) that most middle-class Victorian women looked forward to marriage—even as submissive wives. Considering

The frustration and misery of the governess or the companion, the shame of the woman whose purpose in life had never been fulfilled, the sadness of the spinster and the maiden aunt and the drudgery of the dutiful daughter at home, almost any husband was better than none. (Margetson 103) For some women, however, the very restrictive conventions of Victorian society seemed to have no adverse effects. These women accepted the need to fit within the conventional pattern and devoted themselves to society, to family life, and to an approved range of philanthropic and public causes. Occasionally, personality, inner strength, and martial or familial responsibilities enabled women to gain both influence and satisfaction within marriage and family life. (Caine 4)

Despite apparent contradictions, ironies, and suffering, many women not only remained complacently married but began to make some gains.



Toward the turn of the century, however, according to Jane Lewis, Victorian women began to receive some degree of justice:

Women also made substantial gains within the boundaries of their sphere, for example in respect to their legal rights as wives and mothers in matters of divorce, property and guardianship over children. The move toward recognizing the mother's claim to the children of a marriage as not merely equal but superior to the father's was particularly marked, and served also to reinforce the idea of the primacy of women's role as wife and mother . . . However, there was no simple progressive erosion of the boundaries between male and female worlds. Socioeconomic changes which might have logically been expected to result in the blurring of sexual divisions were often balanced by attitudes and beliefs which served to reinforce those divisions. For example, between 1870 and 1950 the birth rate fell amongst women of all classes, theoretically giving women considerably more time and energy to devote to activities outside the home, while at the same time, the ideology of domesticity was reformulated. Whereas the mid-nineteenth century had stressed the importance of female gentility and 'accomplishments', by the turn of the century higher standards of mothercraft were demanded, and by the inter-war years a more personal involvement in housekeeping was required. (11)

Although these changes indicate progress, it is clear that men were still very much in charge of their wives' lives: "The boundaries of change were in large measure set by men: male doctors defined female sexuality, male scientists defined women's intellectual ability, male legislators their legal capacity, male employers and trade unions their positions at work and husbands their degrees of personal, emotional and financial security" (Lewis 11).

Yet, women managed to somehow survive and make some strides toward at least hoping or daring to plan for a better life in the distant future. In that regard, gradually, Victorian women began to interpret and reinterpret their own situations rather than continue to allow men the pleasurable freedom to do so. According to Lewis, women began to devise workable strategies as follows:

. . . They have often attached a different meaning to institutions and the relationships they share with men (the family being the most obvious example), and these meanings have varied over time according to factors such as class position, marital status and relationship to the labour market. Thus, while in many instances women appear to have accepted the role prescriptions set by men, they may well have had their own reasons for doing so. Women

opposing the vote, for instance, did not necessarily accept the view of many male anti-suffragists that they should be denied it because they were intrinsically inferior; rather they believed for the most part that women's talents were equal to but different from men's and that women's essentially domestic skills were better employed in local rather than national politics. If women's motivation is often more complex than at first appears, then so the outcome of their actions has often differed from what has been expected. (12)

As the boundaries of Victorian women's lives gradually began to change, many women resisted or rejected change in favor of the status quo. With smiles set perfectly in place, others knew what they wanted and how to achieve it while allowing men the privilege of thinking they were in charge. That speaks well for "inferior" women of the nineteenth century in Victorian England.

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# **A Current State of the Art of the Technological Imperative**

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## **INTRODUCTION**

During the sixties, considerable research focused on the relationship between technology and organizational structure. However, during the late seventies and early eighties there appeared to be very little interest in this topic. Gerwin (1979) suggested the following:

.....a possible reason for the research lag is that previous research emphasized manufacturing, while the current technological emphasis is information and system versus work flow level. The works are not easily applicable to this new technology, and research has been sparse (p.9).

More recently, as corporate restructuring becomes an everyday occurrence, there appears to be a resurgent interest in the technological imperative and its relationship to organizational structure. Additionally, current research on this topic is quite scattered and in need of ordering in some fashion (Jackson and Morgan, 1982). This article reviews the most recent empirical studies related to the technological imperative, and identifies trends and directions for future research.

## **BACKGROUND INFORMATION**

In the technological school of thought, the technology employed to accomplish the organization's task is believed to be the primary determinant of its structure and processes. The degree to which technology is believed to determine structure is varied, however, this

central theme has been present in the literature for some time (Gerloff, 1985).

Many of the early studies of technology were conducted using the scientific management approach. This approach was characterized by work studies to improve the techniques of task accomplishment. Later, work processing and flow was emphasized. The main focus was to improve work techniques and social factors, such as individual and groups, which were to be adopted to the existing technology. Later, some social scientists saw the importance of social structure in the organization and with this discovery came the advent of the human relations school of thought. The emphasis now was on people performing in organizations as members of a social group and technology was forgotten.

The fifties saw the relationship of technology as an important variable in the study of organizations. A classic study of the coal-getting process by Trist and Bamforth (1981) depicted the inter-relationship between the technical and social systems of an organization by pointing out the disruption of the social structure as a result of a technological change. This and other studies led to the social-technical system view of organizations, which saw technology and the social organization as interrelated (Miller and Rice, 1963).

### **EARLY STUDIES IN THE TECHNOLOGICAL IMPERATIVE**

Classic studies investigating the relationship between technology and structure appear to be of two basic types. First, there is an attempt to establish a direct relationship between organizational structure and technology (Woodward, 1965). Second, there is research aimed at determining whether technology or size has the greater impact on structure.

There is no conclusive evidence that there really exists a technological imperative. Although there is some research that indicates a strong correlation between technology and structure; other research has reported only a weak relationship. Three classic studies on the technology imperative are reviewed now.

These early views illustrate that technology has been researched as a crucial variable in the study of organizations for many years. However, it was not until the sixties and studies by Woodward (1965), Hickson and his collaborators (1969) and Perrow (1967) that technology emerged as an imperative in organizational study.

Woodward (1965) provided empirical evidence that there was a complete link between technology and organizational structure. The researcher gathered information from varied firms ranging in size from eleven to approximately forty-thousand employees. The main idea emerging from the research was that technical demands of the production system shaped the organization of a firm to a great extent.

The Woodward study (1965) suggested a scale of technological complexity and evidence as to the structural differences along that scale. Additionally, certain organizational characteristics were directly correlated with technology. These variables included the number of levels, span of control for executives, ratio of managers and supervisors to nonsupervisory personnel, and the proportion of indirect to direct workers (Gerloff, 1985).

Hickson and his collaborators (1969) revealed that size affects structure more so than technology by investigating a diverse group of firms ranging in size from two-hundred forty to over twenty-five thousand employees. Initially, three kinds of technology were posited by Hickson and his collaborators (1969), operations, material and knowledge. However, it was concluded that only aspects of operations technology would be investigated.

Gerloff (1982) suggested the following:

.....operations technology was conceptualized as involving two major components: (1) work flow integration was concerned with the level of automation, the interdependence of work flow segments, and the precision and specificity of the evaluation criteria used; and (2) production continuity focused on the nature of the transformation process and was measured against a scale of ten organizational levels that were very similar to those used by Woodward (p. 91).

The researchers were unable to find any substantial support as did Woodward (1965) for a technological imperative and tended to argue for a size imperative.

Noting the difficulties of building a general organizational theory with the limited view of technology as automations, Perrow (1967) proposed a more general definition of technology . The researcher indicated the following:

.....technology could be thought of as the actions that an individual performs upon an object, with or without an aid of tools or mechanical devices, in order to make some changes in that object. The object may be raw material, a living being, human or otherwise a symbol or an inanimate object (p. 195).

Besides offering a general problem solving definition of technology, Perrow (1967) added to the technological imperative by postulating a classification of organizations based on technology. The technological variables used in Perrow's model are the characteristics of the search behavior of the person who works on the raw materials and how many exceptions to familiar problem solving techniques the raw material presents. Additionally, the researcher developed a matrix classification of organizations consisting of craft, nonroutine, engineering, and



routine organizations and argues that firms in each of the categories face different problems and thus must employ different technologies and organization structures.

The three classical studies reviewed laid a general framework upon which subsequent research emanated. The next section of this article will focus on current studies on the technological imperative.

### **CURRENT EMPIRICAL STUDIES ON THE TECHNOLOGICAL IMPERATIVE**

Research into the technological imperative seemed to reach its peak in the sixties. But in the late seventies and early eighties there appeared to be little interest in this topic. This section brings together the current and most recent empirical studies exploring the relationship between technology and organizational design.

Khandwalla (1974) developed a model of the relationship between mass output orientation of manufacturing technology and three organizational variables: vertical integration; decentralization in top level decision making; and the use of sophisticated controls. The researcher's findings did not support Woodward's (1965) contention that there was a technological imperative shaping the organizational structure. But, in contrast, neither did Khandwalla's (1974) findings indicate that there was no technological imperative.

Khandwalla (1974) indicated that the impact of mass production on the three dimensions of organizational structure (vertical integration, decentralization, and sophisticated controls) was modest and selective. Additionally, the investigator suggested that the impact on structure was quite sizable and pervasive for the more profitable firms. Khandwalla's findings were consistent with Hickson (1969) study that firm size was moderately related to organizational structure.

Gerwin (1979) conducted an investigation based on a critical review of the pertinent literature to identify and discuss four areas: (1) finding structural and technological patterns instead of developing theories to explain the patterns; understand social entities without reference to their components; (3) the assumption that structure and technology are independent concepts; and (4) the lack of a design orientation.

It was concluded that it is not meaningful to assume that studies of organizations with broadly different tasks, such as manufacturing and service or profit and non-profit, will exhibit similar structural and technological patterns. Gerwin (1979) further suggested that research at the organizational and component levels should be analyzed separately. The author stated:

.....there continues to be no commonly accepted way of assuming conceptual independence between structure and technology. Perhaps it is time to explore the utility of starting from an

interdependent assumption. For comparative analysis this would mean treating the two as one variable and relating it to contextual and behavioral factors. It should clear up the confusion between the two variables in existing measures (p. 43).

Data from twenty manufacturing plants analyzed by Reimann (1980) suggested that the technology-structure connection may be a function of the level of the analyses. The author made a distinction between system level and work flow level measures of organizational technology and structure and concluded that system level technology tends to be primarily related to system level structural variables and work flow level technology tends to be primarily related to work flow level structural measures.

In a critical replication and extension of the Aston studies by Hickson and his collaborators, Griner and Ardekani (1980) investigated a strong linkage between decentralization of operations and formalization, functional specialization and professional qualifications of office holders, thereby providing support for the concept of a bureaucratic strategy of control.

Daft and MacIntosh (1981) attempted to link Perrow's (1967) technology concepts with information processing variables. Exceptions and analyzability measures were developed using factor analysis to identify processes in organizations that represented the two dimensions described by Perrow. These were then used in exploring the effects of information processing on organization work group units structure.

Mills and Mohert (1982) investigated the fundamental differences between the technologies used in manufacturing and service organizations. The study summarized twenty-six frequently referenced studies that were conducted on the relationship between technology and structure. The examination found that ten of eleven studies in the manufacturing setting and five of eight studies in the services setting supported the technology-structure relationship.

An investigation by Carter (1984) assessed whether the model structure of an organization is influenced by computerization in part, when the computer is viewed as the organization's predominate technology with the potential for affecting the entire work flow process. The implications of the research suggest that the structure of an organization may depend not only on the degree and type of computer applications (technology), but also on the level in the organization at which specific tasks are performed. The computer's use in administrative tasks (representing work process at the upper levels of the organization) had little influence on structure. However, the computer's use in those activities that represented the mid or lower levels had a predominate and differential influence on structure (Carter, 1984).

Barley (1986) posited a theory of how technology may encourage different organization structures by altering institutionalized roles and



patterns of interactions. The author treats technology as a social rather than a physical object and structure is conceptualized as a process rather than an entity. The data collected and analyzed by the researcher suggest that to understand how technologies alter organizational structure, it may be necessary to integrate the study of social action and the study of social form (Barley, 1986).

## CONCLUSIONS

Studies exploring the relationship between technology and structure appear to be of two basic types. First, as in the Woodward study (1965), there is an attempt to establish a direct relationship between organizational structure and technology. Second, as in the Aston study (1969), there is research aimed at determining whether technology or size has the greater impact on structure.

The current state-of-the-art of the technological imperative tends to suggest that there really exists a relationship between technology and organizational structure. This article suggests that there is some research that indicates a strong correlation between technology and structure; while other research has reported only a weak relationship. Additionally, this article suggests that the impact of technology on structure, may be selective, in that only a few dimensions of structure are affected rather than all structural dimensions.

There is a need for more research aimed at service and not-for-profit organizations rather than manufacturing and profit-making organizations. Additionally, more research is needed on relating organizational structure and technological interdependence between components.

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# **The Role of Paraprofessionals in Florida's Extension Programs for Low Income Rural Residents as Perceived By Paraprofessionals and Their Supervisors**

by  
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## **Introduction**

The purpose of this study was to determine if there were differences in perceptions and expectations of paraprofessionals and supervising professionals on how tasks and responsibilities are actually and ideally performed by paraprofessionals in working with low income rural residents in Florida. Role theory provided the basis from which the conceptual framework was developed. The objectives of the study were:

1. To determine if there are differences between the perceptions of Paraprofessionals and their supervising professionals of the actual reactive, proactive and administrative tasks performed by Paraprofessionals; and,
2. To determine if there are differences between the expectations of Paraprofessionals and their supervising professionals of the proactive, reactive and administrative tasks the Paraprofessionals ideally should perform.

## **Methodology**

The Florida Extension Service employs a total of 192 paraprofessionals and 309 professional staff who conduct programs in agriculture, home economics, community resource development, and 4-H youth. These paraprofessionals and professional staff are employed

by the University of Florida and Florida A&M University to develop and implement extension programs for clientele in the sixty-seven Florida counties.

For purposes of this study, the University of Florida's Expanded Food and Nutrition Education Program and Florida Agricultural and Mechanical University's program areas utilizing paraprofessionals were selected for inclusion in this study, both of which provide special educational activities in food and nutrition for low-income residents. The Florida A&M program employs 21 paraprofessionals and two agents, and the University of Florida Expanded Food and Nutrition Program employs 116 paraprofessionals and 14 professionals.

These two programs were selected since both focus on providing special food and nutrition programs for low-income residents and both utilize paraprofessionals in a similar way. Further, both programs are supported in part by federal funds targeted especially for expanded food and nutrition programs for low-income residents.

A total of 137 paraprofessionals and 16 professionals are employed at the county level for these programs. These paraprofessionals and supervising agents constituted the sample which was included in the study.

In order to determine research methods appropriate to implement the objectives of the study, a review of literature was conducted. From the review, a research model was developed which incorporated three major functions or roles that were identified by Gardner (1980). A checklist of tasks was developed for each of the three roles which were combined into a questionnaire, using a format adapted from Gardner's (1980) study on the role of the staff and program development coordinator in Florida's Community Colleges. Extension agents and paraprofessionals were asked to respond to questions addressing role expectations (ideal) and role perceptions (actual). They were also asked to respond to questions pertaining to personal and organizational characteristics which related to their responses.

The questionnaire was mailed to two groups: 16 supervising agents and 137 paraprofessionals employed by the Florida Extension Service. Accompanying the instrument were: a cover letter explaining the purpose of the study, and a self-addressed, stamped return envelope. Two weeks later, a follow-up letter was sent to all non-respondents along with a second copy of the questionnaire and another return envelope.

There was a total of 82 (72.6%) usable responses from 113 Paraprofessionals and 15 (94%) from supervising agents. Twenty-one counties were represented in the returns.

To meet the first and second objective of the study, a Likert type scale was utilized to determine the importance of ideal role expectations and perceived frequency of actual performance of each role. Number



and percent distributions were calculated for each of the 38 tasks. From these data, mean scores were calculated on each role for the two sample groups. To determine differences between the two groups on ideal role expectations and on perceptions of actual performance, Student's t-test was used. The level of significance was set at .05.

Responses to questions pertaining to personal characteristics revealed that paraprofessionals and supervising agents were predominantly female (94%) and ranged from 31 to 60 years of age. Sixty-three percent were black; 26 percent white, and 8% other. Fifty percent had been employed more than 10 years and the remaining 50% one to nine years.

Approximately 90 percent of the professionals and paraprofessionals reported being satisfied with paraprofessionals' knowledge of the position, with the skills they needed to perform their job, and with their personal qualities related to the position. Slightly over 80 percent of the paraprofessionals and professionals reported that paraprofessionals were very important in bringing about changes or improvements in the County Extension Program.

### **Conclusions & Discussion**

The findings in this study revealed that there were differences between the perceptions of Paraprofessionals and supervising professionals on the majority of actual tasks being performed by the Paraprofessionals. This was substantiated by the low number of tasks that were significant at the .05 level. The data revealed no differences between the two groups on 9 of 11 reactive, 6 of the 10 proactive, and 14 of the 17 administrative tasks.

It can therefore be concluded that there is considerable consensus between perceptions of supervising professionals and paraprofessionals on the actual tasks being performed by paraprofessionals. However, in those instances where differences were found in perceptions between supervising professionals and Paraprofessionals on how tasks are performed by Paraprofessionals, conflict or at least confusion, in performance of the role exists.

This finding supports the research done by Owens (1871) who found that when two persons are unable to establish a satisfactory, complimentary, or reciprocal role relationship, confusion over role perception is commonly observed. For the tasks on which differences were found, the paraprofessionals reported they performed reactive and administrative tasks more frequently than was reported by professionals. Also, paraprofessionals reported performing proactive tasks less frequently than was reported by the professionals.

Even though the number of differences were small for each of the task areas, these observations suggest the possibility that differences may exist in perceptions concerning the nature of the tasks being

performed rather than on the specific tasks themselves. Also, perceptions of the importance of these tasks may vary, as could perceptions regarding the contributions of these tasks to effective program operations. Administrative and reactive tasks could be perceived by paraprofessionals as relatively passive contributions to the overall extension program, whereas proactive tasks could be perceived as more active contributions. If paraprofessionals perceive their contributions as being more passive, and/or less important than what the perceptions of the professional would suggest, then there is the likelihood that some misunderstanding and confusion would exist about the actual role behavior of paraprofessionals.

Further data revealed that there were no differences between paraprofessionals' and supervising professionals' expectations of how paraprofessionals should ideally perform the majority of tasks. This is substantiated by the low number of tasks that were significant at the .05 level. The data revealed no differences between the two groups on 9 of 11 reactive, 8 of the 10 proactive, and 7 of 17 ideal administrative tasks. However, differences were found at the .05 level between expectations on two reactive, two proactive, and seven administrative tasks. These differences in expectations of how these tasks should ideally be performed by paraprofessionals reveal that there is at least some conflict or confusion between the two groups on the tasks that should ideally be performed.

This finding supports research by Stogdill (1956) and Owens (1981) which found that differences in role expectations by persons holding similar positions creates role conflict. Also, the data revealed only one task being reported by paraprofessionals as less important for ideal performance than did the professionals. This task was "consult with agents on activities." This suggests that there may be misunderstandings, confusion or conflict about paraprofessionals working under the guidance of supervising professionals. For all the remaining tasks on which differences were found, the paraprofessionals reported each as being more important for ideal performance than did the professionals.

This observation, coupled with the observation that paraprofessionals identified a large number of administrative tasks as being ideally more important, suggests that paraprofessionals may perceive administrative responsibilities as being more important than they do program related proactive and reactive tasks. Conversely, this could mean that professional staff perceive administrative responsibilities as being relatively less important for paraprofessionals than they do program related proactive and reactive tasks. Even though there is considerable consensus about ideal performance of tasks, these observations suggest that there may be differences concerning the nature of the contribution that paraprofessionals should ideally make to the overall extension programming effort.



Finally, the data showed that the largest number of differences in task perceptions between paraprofessionals and their supervising professionals was in the area of ideal administrative tasks.

Differences in perceptions were found on 7 of the 17 ideal administrative tasks, and in all cases, paraprofessionals considered the performance of these tasks as more important than did their supervising professionals. In contrast, differences were found on only two of the ideal reactive tasks and one of the ideal proactive tasks. These data support the conclusion that there is conflict, or confusion about the Paraprofessionals' role in performing various administrative tasks.

Differences in the perceptions of importance of administrative tasks may be due to inadequate job training by the supervising agent, lack of understanding by the paraprofessional of their role in performance of the administrative tasks, lack of understanding by the Paraprofessional of their role in performance of the administrative tasks, lack of adequate job supervision of the paraprofessional by the supervising agent or lack of awareness by the supervising agent that paraprofessionals' expectations are different from theirs with reference to the administrative task being performed.

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# **An Examination of the Materiality Judgment Policies of Public Accountants**

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## **INTRODUCTION**

Judgments of materiality, which involve the determination of the importance of an item, are crucial to the appropriate treatment and presentation of financial data. Materiality judgments improve upon the accounting process by permitting items of little or no consequence to be dealt with in an expedient fashion. Appended to each official announcement of the Financial Accounting Standards Board is the caveat: "This pronouncement need not apply to immaterial items." Materiality judgments also result in an improved reporting process by eliminating from the financial reports insignificant data that may obscure more important information. In addition, the type and extent of disclosures to be made depend upon the degree of materiality. For example, in discussing the criteria for extraordinary items, paragraph 24 of Accounting Principles Board Opinion No. 30 states:

The effects of an extraordinary event or transaction should be classified separately in the income statement . . . if it is material in relation to income before extraordinary items or the trend of annual earnings before extraordinary items, or is material by other appropriate criteria.

Judgments of materiality are also inherent in the work of the independent auditor. The extent and nature of the audit work required

are to a large degree dependent upon the importance of the item being reviewed, as well as the possibilities of material error. That is, a more extensive audit is required when the item under investigation is relatively more important or the possibilities of material error are greater (American Institute of Certified Public Accountants, 1973, p. 6).

### **Research Paradigm**

Because of the importance of materiality judgments in accounting and auditing, researchers have in recent years conducted studies in an effort to describe and understand the manner in which accountants integrate the many pieces of information into a materiality decision. Such descriptions are important for three reasons. First, they allow the evaluation of the quality of materiality judgments. Maintaining high judgment quality is crucial if the accountant is to be successful in presenting financial information in a concise and intelligible form. Second, the descriptions make it possible to improve judgment quality since the first step to improvements is the recognition of imperfections in decision behavior. Finally, the data generated by the research can contribute to the development of psychological theories aimed at increasing the understanding of basic cognitive processes (Libby, 1981, p. 2).

Libby and Lewis (1977) have developed a framework within which to position and formulate questions on decision making within any decision context. The factors relevant to the processing of data are summarized into three broad classes: input (information set), process (decision process) and output (judgments). Studies of the information set examine the characteristics of the set and the decision context for effects on the decision process. Studies focusing on the decision process use mathematical techniques to describe the decision maker's decision rule and to investigate the impact of decision maker characteristics on the decision rule. Researchers studying the decision maker's judgments are interested in judgment quality and the decision maker's awareness of the decision rule (self-insight).

In describing the accountant's materiality decision behavior and assessing judgment quality, the paradigm stimulates the following types of researchable questions.

1. Which factors—quantitative and qualitative—are perceived as important indicators of the materiality of an item? Are materiality decisions based primarily upon considering the familiar quantitative ratios or are considerations of the surrounding circumstances also important?
2. How are the factors integrated in forming materiality judgments? Is an item judged material based upon whether any one of several potentially important factors reaches a cutoff (a disjunctive process)



or can high values on one or more factors offset low values on other factors (a compensatory process)?

3. What decision heuristics are being employed in an effort to simplify the materiality judgment task and what effects do they have on judgment quality?
4. What is the quality of the judgments? Do materiality judgments meet the needs of the users of financial statements or is the concept being used to justify inappropriate accounting practices as has been suggested (FASB Discussion Memorandum, 1975, p.3)? Are accountants' judgments free from judgmental biases? Do accountants lack judgmental consensus as the literature suggests (Hofstedt and Hughes, 1977)?
5. In what ways do the characteristics of the accountant influence the manner in which materiality judgments are made as well as the quality of the judgments? Do preparers and auditors have dissimilar views of materiality as has been suggested (FASB Discussion Memorandum, 1975)? Does the accountant's risk-taking propensity affect materiality decision making? For example, does the risk-averse accountant adopt more stringent materiality thresholds?
6. How can the quality of materiality judgments be improved? Will more stringent guidelines improve judgment quality or will they merely result in the disclosure of more information than can be analyzed by the user? In formulating guidelines, is it necessary that the perceived needs of the users of the financial statements be considered, or can the guidelines be a reflection of the consensus opinion of accountants as to how materiality judgments should be made?

### **Purposes of This Study**

The main concerns of the empirical studies examining materiality have been the relative importance of the materiality factors, the functional form of the decision rule, judgment predictability and consensus.

The objectives of this study were to:

1. Examine the effects of modifying factors on materiality judgments,
2. Assess consensus relative to final judgments,
3. Assess judgment consistency.

The importance of each objective is discussed below.

### **Effects of Modifying Factors**

In this study, materiality factors have been divided into two types: determinant factors and modifying factors. Pattillo (1976, p. 39) described determinant factors as:

. . . those relationships serving to form the basis for a tentative judgment about the materiality of the judgment item in a specific situation . . . (They) are generally stated in terms of the judgment item's relationships to selected totals in the financial statements (and) . . . are measurable in quantitative terms: absolute dollar amounts, percentages, and ratios.)

Modifying factors were described as:

. . . those circumstances serving to form the basis for modifying the tentative judgment about the item's materiality based upon the determinant factors. (They) are generally stated in terms descriptive of certain conditions, situations, or circumstantial relationships which bear upon the firm and the judgment item. (They) are measurable generally only in nonquantitative terms (Pattillo, 1976, p. 40).

A list of determinant and modifying factors appears in Table 1.

**Table 1. A List of Potentially Important Materiality Factors**

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**Determinant Factors**

Dollar amount of the judgment item  
 Judgment item as a percentage of:

- sales
- \*expenses
- gross income
- net income
- assets
- liabilities
- stockholders' equity
- its account total
- its classification total
- \*net working capital

**Modifying Factors**

- Characteristics of the environment
  - Political - national and world
  - Economic - national and world
  - Industry - national and world

- Firm's position in its industry
- Business practices and customs
- Regulatory requirements
- Income tax considerations
- Needs and expectations of users of financial statements

Characteristics of the firm

- Age and maturity of the firm
- Capitalization structure
- Seasonal nature of its operations
- Competitive situation
- Geographical dispersion of operations
- Integrated nature of the operations
- Diversity of suppliers and customers
- Ownership interests and diversity
- Costs of gathering and presenting data against benefits
- Public image of the firm
- Management's capabilities and public credibility
- Liquidity - short and long term
- Solvency - short and long run
- Profitability - trend of earnings
- Organizational structure
- \*Riskiness of the firm
- \*Absolute size of the firm as indicated by sales
- Absolute size of the firm as indicated by assets

Characteristics of the judgment item

- Timing - current effect or future effect
- Timing - one-time effect or continual effect
- Accounting areas
- Result of discretionary or non-discretionary action of management
- Result of temporary or permanent condition
- Related-party or arm's-length transaction
- Potential for violation of certain agreements
- Potential for violation of certain laws
- Result of math error or actual event
- Potential for management of earnings
- Relationship to normal operations
- Certainty with respect to ultimate realization of assets or liquidation of liabilities



Effect of the existence of other dissimilar judgment items  
 \*Effect of item on earnings trend

Characteristics of the accounting system or policies in use  
 Selection of liberal or conservative accounting policies  
 Extent of variation from GAAP  
 Extent of variation from accepted industry practices  
 Consistency of application of policies  
 Comparability of resulting information  
 Effect of subsequent events  
 Extent and specificity of disclosure of accounting policies  
 in use

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Note: This list is drawn from Pattillo (1976, p. 36), except that additional factors (identified by \*) have been included.

It has been suggested that modifying factors influence materiality judgments in two ways. First, the importance of determinant factors are influenced by considerations of certain modifying factors (Pattillo, 1976, p. 40). That is, the relative weighting of the determinant factors within the decision process appears to be dependent on the nature of the judgment item and the surrounding circumstances. Second, these factors form the basis for modifying the tentative judgments of materiality that were based on the determinant factors (Pattillo, 1976, p. 40). In particular, they have the effect of shifting the materiality thresholds of the determinant factors. Pattillo (1976, p. 40) hypothesized that favorable information concerning the firm causes upward shifts in the thresholds (more lenient thresholds) while unfavorable information produces downward shifts (more stringent thresholds).

Studies examining the materiality concept have primarily focused on identifying the determinant factors that are important to materiality decisions. Very little effort has been directed toward assessing the effects of the modifying factors. The only study to extensively examine both effects did so without the aid of statistical procedures (Pattillo, 1976). One objective of the present study was to assess the effects of three modifying factors on the importance of four determinant factors.

### **Judgment Consensus**

As in the case of many judgment tasks in accounting, there exists no objective criterion for distinguishing correct and incorrect materiality

judgments. In such situations, the consensus judgment of experts has been used as a substitute criterion for evaluating the quality of professional judgments. Support for the use of consensus judgment has its basis in the psychological literature. Einhorn (1974) argued that consensus among experts is a necessary condition for the existence of professional expertise. Accordingly, experts should not only make similar judgments (agreement in fact), but they should also weigh and combine information in similar ways (Einhorn, 1974, p. 563).

Two points are noteworthy. First, consensus alone does not ensure accuracy. As we are aware, agreement among individuals does not necessarily mean that they are correct. On the other hand, however, the lack of consensus among experts is evidence of inaccuracy. Secondly, because of the highly probabilistic world in which we exist, it is possible to have judgment consensus although the individuals use dissimilar weighting policies. However, it appears that an important goal in acquiring expertise is the learning of all important cue-criterion relationships (Einhorn, 1974, p. 570).

Consensus judgment is also of particular interest to the accountant in that it is important in the formulation of accounting standards (Libby, 1981). The lack of objective criteria makes it impossible to derive standards that are the result of objective measurements. Consequently, many of today's accounting standards and procedures represent the consensus opinion of accounting experts. Therefore, it is consensus judgments (standards) that are used to promote consensus within the profession and are the accountant's defense when judgments are questioned by persons outside the profession.

The auditing profession has also demonstrated a concern for consensus in audit judgment. The recent trend toward the development of more detailed audit manuals, the use of expert measurement and mechanical combination methods to determine sample sizes and statistical reliability, and the emphasis on the existence of continuing education programs within firms are examples of measures that have been taken by the audit firm to reduce judgment variance among staff members (Libby, 1981).

### **Judgment Consistency**

It is recognized that the ability of the individual to process information is limited (Tversky and Kahneman, 1974). As a result, human judgment is often not perfectly reliable. Because the financial statements and other accounting information are relied on in making resource allocation decisions, it is important that the extent of judgment inconsistency (within-person variation) is assessed and the possible reasons for it are identified. Once this is done, measures can be taken to improve upon judgment reliability where necessary.



The remainder of this paper is organized in the following manner. First, we review the empirical literature pertaining to the topic of materiality. Following that, in two separate sections, we describe the design of the experiment and its results. Finally, we summarize the conclusions drawn from the analysis in addition to the implications of the findings of the study.

## **A REVIEW OF THE EMPIRICAL LITERATURE**

The major concerns of the studies have been factor usage, decision rule form, judgment predictability, and judgment consensus. In addition, characteristics of the subject were examined in an effort to account for between-subject differences. The research findings are presented below.

### **Factor Usage**

The studies reviewed have shown several factors to be statistically related to the subject's materiality judgments, among which are the nature of the item, riskiness of the firm, the effect of the item on working capital, as well as the item expressed as a percentage of various items on the financial statements, including net income, net book value, total assets, and total revenues or expenses. The most important factor has been the judgment item expressed as a percent of net income. This was true regardless of the particular set of factors chosen, the methodology used to construct the cases, the manner in which the materiality judgments were expressed, the statistical technique used to model the judgments, or the subject's occupation.

With three exceptions, the studies have focused on the importance of determinant factors. Information describing essential features of the firms and their environments (modifying factors) have been largely ignored or have been incorporated into the experimental cases as unchanging background data. Boatsmen (1973), however, did examine the effects of two modifying factors: the nature of judgment item and the riskiness of the firm. Three types of items were selected: gains and losses on the disposal of noncurrent assets, changes in accounting policy, and contingent liabilities. The factor describing the nature of the judgment item was the second most important factor, accounting for 24 percent of the predictive power of the composite model. The riskiness factor accounted for two percent of the predictive power, making it the third most important factor.

Pattillo (1976) was commissioned by the Financial Executive Institute to conduct a comprehensive study aimed at drawing inferences as to the factors (determinant and modifying) underlying materiality judgments. Although no statistical tests were performed, Pattillo concluded that



the importance of the materiality factors and the materiality thresholds employed by the subjects were influenced by certain modifying factors such as the firm's profitability, management's capabilities and credibility, economic conditions, timing of the event, the liquidity and solvency of the firm, and the accounting area involved.

Brown (1979) investigated the effects of three modifying factors on materiality thresholds: (1) the nature of the decision involved (a lending versus an investment decision); (2) the size of the commitment of resources being made; and (3) the accounting area involved. Although none of the tests performed yielded statistically significant results, the high positive values of the test statistics led the author to conclude that the subjects' responses were affected by the modifying factors.

### **Decision Rule Form**

Research has consistently shown that the subject's judgment processes can be described by linear-additive models (Boatsman, 1973; Hofstedt and Hughes, 1977; Moriarity and Barron, 1976; Firth, 1980). In general, adding interaction terms resulted in only minor improvements in the model's predictive power.

### **Judgment Predictability**

For those studies in which measures of predictive power were reported, the participants' judgments were highly predictable by the statistical models of the subject's judgment process. For example, Boatsman (1973) successfully classified 63 percent of the cases correctly when the composite model grouped the cases into 3 categories.

### **Consensus**

The studies revealed low consensus among the subjects along several dimensions. For example, subjects differed with respect to: (1) the materiality thresholds selected (First, 1980; Hofstedt and Hughes, 1977; Pattillo, 1976); (2) the relative and absolute importance of the materiality factors employed (Hofstedt and Hughes, 1977; Moriarity and Moriarity and Barron, 1976, 1979; Pattillo, 1976); and (3) the final materiality judgment (First, 1980).

### **Summary**

Although the empirical studies provided additional insights, there are still many unresolved issues. For example, determinant factors have received the greatest attention, while very little effort has been devoted to determining the role of modifying factors. The objective of the present study was to provide additional insight into the importance of modifying factors.

The two primary judgment qualities examined by the studies were consensus and predictability. Both provided evidence as to the reliability of materiality judgments. The present study also examined judgment consensus.

The studies reviewed provided no evidence as to the consistency of materiality judgments. The present study, in examining consistency at a point in time, provided additional evidence as to judgment reliability.

## METHOD

The issues raised within this study were investigated within the confines of a lens study. Practicing auditors were asked to determine the materiality of a group of eighty hypothetical cases based upon the consideration of a set of determinant and modifying factors.

### Subjects

Forty-three practicing auditors from the Midwestern offices of four of the largest public accounting firms served as subjects. The auditing experience of the participants ranged from 2 to 32 years, with a mean experience level of 5.7 years.

### Task

The experimental task required each subject to respond to one set of 80 cases (72 unique and eight duplicate cases). As in Hofstede and Hughes' (1977) study, each subject was asked to estimate the probability that a judgment item was material enough to recommend disclosure by stating a number between 0 and 100. The probability judgment avoided the problem of confounding materiality evaluations with decisions of form of disclosure encountered by Boatsman (1973).

### Design

#### Cues

Four determinant factors and three modifying factors were manipulated in an orthogonal design. These factors are described below.

**Determinant Factors.** A set of four determinant factors were selected for study: (1) loss as a percent of net income, (2) effect of the loss on working capital, (3) loss as a percent of stockholders' equity, and (4) loss as a percent of total assets or total liabilities. Complete definitions of the factors appear in Table 2.

Because of the factorial design selected and the desire to construct a questionnaire that could be completed in less than two hours, the number of determinant factors was restricted to four. Moreover, prior

**Table 2. Definitions of the Determinant Factors**

Loss as a percent of net income	absolute amount of the loss divided by net income without recognition of the loss
Effect of the loss on working capital	(1) extraordinary loss - cash flow generated from the transaction as would be disclosed in the funds statement divided by year-end working capital  (2) contingent loss - potential decrease in the cash flow associated with the loss divided by year-end working capital
Loss as a percent of stockholders' equity	absolute amount of the loss divided by year-end stockholders' equity
Loss as a percent of total assets or total liabilities	absolute amount of the loss divided by total assets (for extraordinary losses) or total liabilities (for loss contingencies)

research suggests that the number of factors significantly impacting on materiality decisions may be as few as four (Boatsman, 1974; Firth, 1980).

The particular factors selected for the present study were chosen after a careful review of the theoretical and empirical literature on materiality decisions. Support for the inclusion of these factors is also found in the studies reporting objective (statistical) measures of factor importance (Firth, 1980; Boatsman, 1973; Hofstedt and Hughes, 1977; Moriarity and Barron, 1976, 1979).

To further support the choice of factors, a sample of 11 managers and partners of 3 of the largest accounting firms were asked to rate a selected set of factors in terms of their importance in determining the materiality of an extraordinary loss and a contingent loss. The factor ratings were summed across individuals and ranked based on the summed ratings. The four factors examined here ranked among the top five.

To limit the number of cases that would be required by a factorial design, each factor was assigned two or three levels, depending on the predicted relative importance of the factors. Three levels were assigned



to the two most important factors (net income and stockholders' equity) and two levels to the others (see Table 3).

**Table 3. Levels For Each Determinant Factor**

Determinant Factor	Factor Levels		
	1	2	3
Net Income	Immaterial	Uncertain	Material
Stockholders' Equity	Immaterial	Uncertain	Material
Assets/Liabilities	Immaterial	Material	
Working Capital	Immaterial	Material	

Woolsey's (1973) suggestion that materiality range limits be established rather than the conventional single-point materiality thresholds lends support to the assignment of three factor levels. According to Woolsey, below the lower limit of the range, the item would be considered immaterial. Above the upper limit, the item would be considered material. The materiality of items falling within the range would be determined on the basis of the surrounding circumstances. This suggests that the factors could be assigned one level which clearly indicates the item is material, a second level which indicates that the item is immaterial, and a third level which does not clearly indicate the materiality of the item.

The decision was made to use descriptive rather than quantitative levels. When a continuous variable is reduced to a few discrete levels, there is always the possibility of selecting inappropriate numerical levels. Errors in the selection process could especially lead to incorrect conclusions regarding factor importance (Libby, 1981, p. 40). Assessing the importance of each materiality factor required that each subject perceive the factor levels as indicating that the item was either material, immaterial, or that its materiality was uncertain. Selecting incorrect levels for a particular factor could, for example, result in a subject judging the item immaterial at each factor level. The failure to select

levels that reflected the subject's personal materiality threshold would result in incorrectly concluding that the factor was not perceived by the subject as an important indicator of materiality. Because previous studies have revealed differences across individuals with respect to materiality thresholds employed, selecting appropriate quantitative levels would be exceedingly difficult (Hofstedt and Hughes, 1977; Firth, 1980; Pattillo, 1976).

**Modifying Factors.** The effects of three modifying factors were examined: (1) the nature of the judgment items, (2) the earnings trend of the firm, and (3) the credibility of management. The selection of these factors was based primarily upon the consideration of preliminary evidence suggesting that they influence materiality judgments (Pattillo, 1976).

To limit the number of cases each participant had to consider, each factor was assigned two levels. The two judgment items selected were contingent losses and extraordinary losses. Contingencies (possible claims against a company that might require an outflow of cash) and extraordinary items (events that are both unusual in nature and infrequent in occurrence) have received considerable attention in prior materiality studies. Brown (1979), Pattillo (1976) and Boatsman (1973) focused on contingencies while Pattillo (1976) and Firth (1980) focused on extraordinary items. The studies did not, however, statistically assess the effects of changing the nature of the judgment item on the materiality decision process.

The credibility factor was assigned a favorable and an unfavorable level. The credibility factor, set at the favorable level, characterized the firm's management as exhibiting high credibility, as demonstrated by its ability to exercise sound judgment. At the unfavorable level, management was described as exhibiting low credibility. It would issue optimistic press releases, but when finally disclosed in the published annual report to stockholders, the results would be less than favorable.

The earnings trend factor, set at the favorable level, described a firm which had experienced a steady growth in earnings in the prior years. In addition, a similar growth in earnings was expected in the foreseeable future. At the unfavorable level, the firm had experienced a steady decline in earnings in prior years which was expected to continue into the future.

Results reported by Pattillo (1976) suggest that the introduction of information concerning the judgment item, the firm and its environment affects the auditor's choice of materiality thresholds. Pattillo noted that the subjects applied more stringent thresholds when the cases involved extraordinary items compared to contingent items, or when the cases incorporated unfavorable information to favorable information. It is expected, therefore, that the subjects' probability responses to cases



incorporating unfavorable information concerning earnings trend and management's credibility will exceed the responses to cases presenting favorable information. In addition, it is expected that the probability responses to cases involving extraordinary losses will exceed the responses to the contingent losses. Although the literature suggests that usage of the determinant factors are influenced by environmental considerations (i.e., modifying factors), the evidence does not clearly indicate the direction of the effect.

### **Experimental Design**

Each participant was randomly assigned to one of three experimental groups. Each group was established to examine the impact of a particular modifying factor. Three sets of cases were constructed, one for each experimental group. Each set contained descriptions of the four determinant factors and the modifying factor assigned to that group (see Figure 1).

Because the relative importance of the materiality factors was of interest, a factorial design was used to construct each set of cases. Each set developed consisted of all possible combinations of the four determinant factors and the assigned modifying factor.

In addition to the four determinant factors, each case in the information set for Group I included a description of the firm's earnings trend. The descriptions were incorporated into cases involving extraordinary losses. The cases contained in the second information set (Group II) included the four determinant factors and evaluations of the credibility of the firm's management. The evaluations were incorporated into cases involving contingent losses. The decision to couple the earnings trend factor with extraordinary losses and the credibility factor with contingent losses was based upon Pattillo's (1976) findings suggesting that decisions involving extraordinary items (contingent items) are affected by the company's earnings trend (management's credibility).

The third information set (Group III) included 40 cases involving extraordinary losses and 40 involving contingent losses. Each case, therefore, included information on the four determinant factors plus information revealing the judgment item under consideration.

Although only four determinant factors and three modifying factors were manipulated, the literature suggests that there are numerous other factors that are relevant to materiality decision making (Pattillo, 1974; FASB Discussion Memorandum, 1975). To add to the realism of the cases, several modifying factors were incorporated as unchanging background data. The information included general descriptions of the firms and their environments.

The industry selected—the electronics industry—was arbitrarily chosen. Care was taken, however, to select an industry that was not



**Figure 1. Experimental Design and Subject Group\***

	Extraordinary Loss	Contingent Loss
Earnings Trend:		
Favorable	Group I (40 cases)	Not investigated
Unfavorable	Group I (40 cases)	
Management's Credibility:		
Favorable	Not investigated	Group II (40 cases)
Unfavorable		Group II (40 cases)
No information on trend or credibility:	Group III (40 cases)	Group III (40 cases)

\*Each cell indicates exposure to 40 cases, representing 36 cases comprising a complete factorial manipulation (3 X 3 X 2 X 2) of the variables net income, stockholders' equity, working capital and total assets/liabilities, plus an additional 4 cases.

experiencing financial difficulties. The data concerning industry conditions were compiled from Standards and Poor's Industry Survey. The

description of the firm was closely modeled after an actual firm that is engaged in the development, production, marketing and servicing of business equipment.

### **Procedures**

The experimental materials were mailed to a partner in each firm who in turn distributed the case packets to the participants. Each participant was randomly assigned to an experimental group, depending on the packet distributed by the partner.

### **RESULTS**

The following research questions were explored:

1. Which of the four determinant factors and three modifying factors made significant contributions to explaining the subjects' materiality judgments?
2. What were the relative explanatory contributions of these factors?
3. What impact did the modifying factors have on usage of the determinant factors?
4. What was the extent of judgment consistency?
5. Was there consensus among the subjects with respect to final judgments?

### **Factor Usage**

To provide insights into the absolute and relative importance of materiality factors, an aggregate model using the 72 unique probability responses of the N auditors participating in the group was constructed for each experimental group. Each of the three models was constructed using a 3 (net income) X 3(stockholders' equity) X 2(total assets/liabilities) X 2(working capital) X 2(modifying factor) X N(subjects) completely randomized block factorial design. In addition to the aggregate models, a separate ANOVA was run on each subject's 72 probability responses. A 3(net income) X 3(stockholders' equity) X 2(total assets/liabilities) X 2(working capital) X 2(modifying factor) factorial design was used to construct the individual models.

For both the aggregate and individual models, the omega-square statistic was calculated for each significant main effect and interaction. As a measure of factor importance, the statistic estimates the proportion of response variance that is accounted for by a particular factor pattern (Kirk, 1969, p. 126).

The results of the aggregate and the individual analyses suggest that the determinant factors were perceived by the subjects as indicators of materiality. Examining the aggregate models, the main effects of the determinant factors were highly significant ( $p < .01$ ), indicating that the

mean responses of the auditors varied systematically with the levels of each factor (see Tables 4, 5 and 6). The importance of the factors is also suggested by the results of the individual analyses. Table 7, which shows the factors used by subjects to a statistically significant ( $p < .05$ ) degree, indicates that each of the determinant factors was relied on by at least 37 (86%) of the 43 subjects participating in the study. In fact, 35 (81%) of the subjects relied on all four factors (see Table 8).

**Table 4. Analysis of Variance Performed on the Probability Responses of the Fifteen Subjects Participating In Experimental Group I**

Source of Variation	—df—	—F—	Omega-Square Value
Subjects (S)	14	110.5*	.20
Earnings trend (A)	1	11.1*	.01
Stockholders' equity (B)	2	57.6*	.05
Total assets (C)	1	40.9*	.14
Net income (D)	2	82.2*	.26
Working capital (E)	1	176.2*	.07
S x A	14	5.1*	.01
S x B	28	3.4*	.01
S x C	14	26.2*	.05
S x D	28	12.2*	.04
S x E	14	2.9*	.004
A x B	2	2.4	
A x C	1	1.0	
A x D	2	1.5	
A x E	1	2.3	
B x C	2	1.0	
B x D	4	2.3	
B x E	2	1.7	
C x D	2	4.2**	.003
C x E	1	3.5	
D x E	2	1.1	

\* $p < .01$

\*\* $p < .05$

Note: The experimental design as a 3(net income) X 3 (stockholders' equity) X 2(total assets) X 2(working capital) X 2(earnings trend) X 15(subjects) factorial design with repeated measures on the subjects factor.



**Table 5. Analysis of Variance Performed on the Probability Responses of the Fifteen Subjects Participating In Experimental Group II**

Source of Variation	—df—	—F—	Omega-Square Value
Subjects (S)	14	27.5*	.08
Management's credibility (A)	1	6.5**	.005
Stockholders' equity (B)	2	93.4*	.09
Total liabilities (C)	1	20.3*	.08
Net income (D)	2	67.9*	.26
Working capital (E)	1	56.4*	.07
S x A	14	3.4*	.007
S x B	28	2.3*	.008
S x C	14	17.8*	.05
S x D	28	8.8	.05
S x E	14	5.9	.02
A x B	2	1.9	
A x C	1	1.0	
A x D	2	1.0	
A x E	1	1.0	
B x C	2	1.0	
B x D	4	3.0**	.003
B x E	2	5.4*	.001
C x D	2	5.1*	.008
C x E	1	1.6	
D x E	2	3.3**	.002

\*p &lt; .01

\*\*p &lt; .05

Note: The experimental design was a 3(net income) X 3 (stockholders' equity) X 2(liabilities) X 2(working capital) X 2(management's credibility) X 15(subjects) factorial design with repeated measures on the subjects factor.

The modifying factors were also used by the subjects in formulating the materiality responses. Examining the aggregate models, two of the modifying factors (earnings trend and management's credibility) reached significance (Tables 4, 5, and 6). The individual analyses indicate that the earnings trend factor was relied on by 7 of the 15 subjects in Group I and the credibility factor was relied on by 5 of the 15 subjects in Group II (see Table 7). The subjects responded to the two factors by increasing the probability response when the factors were set at the unfavorable level. That is, the subjects were more likely to disclose the

item when negative information was received regarding management or the company's earnings trend.

The only insignificant main effect in the aggregate analyses was the modifying factor, nature of the judgment item (see Table 6). However, the nature of the judgment item X (working capital interaction) was significant, suggesting that the modifying factor was of importance in

**Table 6. Analysis of Variance Performed on the Probability Responses of the Fifteen Subjects Participating In Experimental Group III**

Source of Variation	—df—	—F—	Omega-Square Value
Subjects (S)	12	107.2*	.19
Nature of judgment item (A)	1	2.2	
Stockholders' equity (B)	2	60.7*	.14
Assets/liabilities (C)	1	66.9*	.09
Net income (D)	2	96.6*	.26
Working capital (E)	1	35.6*	.06
S x A	12	5.9*	.01
S x B	24	7.9*	.02
S x C	12	8.6*	.01
S x D	24	8.9*	.03
S x E	12	11.0*	.02
A x B	2	2.9	
A x C	1	2.7	
A x D	2	1.0	
A x E	1	11.0*	.001
B x C	2	1.2	
B x D	4	2.3	
B x E	2	1.0	
C x D	2	2.5	
C x E	1	1.0	
D x E	2	1.2	

\* $p < .01$

Note: The experimental design was a 3(net income) X 3 (stockholders' equity) X 2(total assets/liabilities) X 2(working capital) X 2(nature of judgment item) X 15(subjects) factorial design with repeated measures on the subjects factor.

**Table 7. Factors and Factor Combinations Used By Subjects To A Statistically Significant Degree**

Materiality Factor	Number of Subjects Relying on the Materiality Factor			
	Group I	Group II	Group III	Total
Earnings trend	7	NA	NA	7
Management's credibility	NA	5	NA	5
Nature of judgment item	NA	NA	6	6
Stockholders' equity	14	15	13	42
Assets/liabilities	15	12	12	39
Net income	15	14	13	42
Working capital	15	13	9	37
All interactions	22	17	16	55

Materiality Factor	Average Omega-Square Value Across Subjects for Each Factor			
	Group I	Group II	Group III	All Groups
Earnings trend	2.5	NA	NA	2.5
Management's credibility	NA	1.5	NA	1.5
Nature of judgment item	NA	NA	2.2	2.2
Stockholders' equity	8.3	11.5	18.9	12.6
Assets/liabilities	19.9	11.1	13.0	17.9
Net income	39.3	36.7	38.5	38.2
Working capital	9.9	8.7	8.4	9.0
All interactions	0.4	0.3	0.3	0.3



**Table 8. Number of Main Effects and Interactions Reaching Significance For Each Subject**

Number of Main Effects and Interactions	Number of Subjects			
	Group I	Group II	Group III	All Groups
<b>Main Effects</b>				
0 - 1		1		1
2		1	1	2
3	1	1	3	5
4	<u>14</u>	<u>12</u>	<u>9</u>	<u>35</u>
Total Subjects	<u><u>15</u></u>	<u><u>15</u></u>	<u><u>13</u></u>	<u><u>43</u></u>
<b>Interactions</b>				
0	5	6	3	14
1	4	6	6	16
2	3	0	2	5
3	1	1	2	4
4	1	2	0	3
5	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total Subjects	<u><u>15</u></u>	<u><u>15</u></u>	<u><u>13</u></u>	<u><u>43</u></u>

Note: The main effects and interactions were significant at the .05 level.

formulating the materiality responses. In fact, the individual analysis indicates that the main effect for the factor was significant for 6 of the 13 subjects participating in Group III (see Table 7). For each of the six subjects, the probability responses to cases involving extraordinary

losses were, on average, greater than the responses to contingent losses. That is, the subjects were more inclined to disclose extraordinary losses than contingent losses. This was in accord with predictions.

For each experimental group, the factor explaining the greatest amount of judgment variance and the factor most often relied upon was net income. In the case of Group I, for example, net income explained, on average, 39.3 percent of a subject's judgment variance and was statistically significant for each of the 15 auditors (see Table 7). When considering all 43 participants, the income factor was considered by 42 of the auditors. Its overwhelming importance is also evident from the aggregate analysis. With respect to Group II, for example, the omega-square value for net income was .26 compared to .09 for stockholders' equity, the second most important factor.

For each experimental group, the modifying factor played a relatively minor role in explaining judgment variance. Of the three modifying factors, information concerning the company's earnings trend appeared to have the greatest impact on the materiality decisions. It accounted for, on average, 2.5 percent of the subject's judgment variation and was relied on by 7 of the 15 auditors of Group I.

The relative importance of the remaining factors depended on the judgment situation faced by the subjects. In the case of Group I where extraordinary losses were examined and information concerning earnings trend was provided, the second most important factor was total assets followed by working capital and stockholders' equity. In the case of Group II (wherein the judgment item was contingent losses and information regarding management's credibility was provided), the second most important factor was stockholders' equity, followed by total liabilities and working capital. For Group III where the subjects had to judge the materiality of both extraordinary losses and contingent losses without any information regarding the company's earnings trend or management, the second most important factor was stockholders' equity, followed by total assets/liabilities and working capital. The results were the same for both the aggregate and individual analyses (see Tables 4 through 7).

The subjects appeared not to look for patterns in the materiality factors. Instead, the results suggest that they tended to evaluate the effect of each factor independently of other factors. This is reflected by the relatively few significant interactions involving only determinant factors. In addition, on average, virtually all of a subject's explainable response variance could be predicted by combining the individual materiality factors in an additive fashion, ignoring all interactions. For example, of 150 possibly significant interactions for subjects in Group I (15 subjects times 10 interactions), only 22 (15%) were significant. These interactions accounted for, on average, 0.4 percent of a subject's judgment variance (see Table 7).

**Effect of the Modifying Factors on Usage  
of the Determinant Factors**

To examine the effects of the modifying factors on utilization of the determinant factors, two ANOVA models were constructed for each subject. The design was a 3(net income) X 3(stockholders' equity) X 2(total assets/liabilities) X 2(working capital) factorial design wherein the four determinant factors were the main effects. Each level of a modifying factor defined a particular decision environment or judgment situation. Each ANOVA model, therefore, was a representation of the subject's judgment process within the described environment. In the case of Experimental Group I, the responses to the 36 firms experiencing favorable earnings trends were entered into the first ANOVA model, while the responses to the 36 firms experiencing unfavorable earnings trends were entered into the second model.

The omega-square value was calculated for each statistically significant main effect and interaction. To assess the effects of a modifying factor, the omega-square values of each main effect (determinant factor) were compared across the two judgment situations defined by the levels of the modifying factor. To determine the effects of the earnings trend factor on the utilization of net income, for example, the omega-square values for the net income main effect when the firm's earnings trend was unfavorably evaluated was compared to the corresponding omega-square values when the earnings trend was favorably evaluated. Table 9 presents the average percentage changes in the omega-square values for each group.

**Table 9. Average Absolute Percentage Change in Omega-Square Values Observed When Comparing The Subjects' Two Situational Models\***

Group	Stockholders' Equity	Assets/ Liabilities	Net Income	Working Capital
I	49	30	29	41
II	51	47	23	73
III	56	107	29	23

\*Decimal points are omitted.



The data suggest that the modifying factors did affect utilization of the determinant factors as reflected by the sizable changes in the weights assigned to each determinant factor. In fact, when examining the results for individual subjects, 35 of the 43 subjects (13 in Group II and 11 in each of Groups I and III) displayed a change of 50 percent or more for at least one factor.

As indicated by the size of the mean absolute difference in omega-square values and by the number of subjects displaying large differences, the income factor appeared to be least affected by the modifying factors. In the case of Group II, the mean absolute difference in omega-square values for net income was 23 percent. The mean difference for the remaining factors ranged from 46.8 percent to 73.2 percent. In addition, only 4 of the 15 individuals changed the weight attached to net income by 30 percent or more, compared to either 9 or 11 subjects for the remaining factors.

The factor most affected varied across experimental groups. Earnings trend had its greatest impact on stockholders' equity. Management's credibility had its greatest impact on usage of working capital, while varying the nature of the judgment item had the greatest influence on usage of the assets/liabilities factor.

With two possible exceptions, the data suggest that the modifying factors did not produce systematic effects across subjects. That is, the subjects did not agree as to the appropriate response to information concerning the firm's earnings trend, management's credibility or nature of the judgment item. This is evident from the relative number of positive and negative differences. In the case of Group I, for example, there was approximately an equal number of individuals relying more heavily on the total assets factor when the firms exhibited unfavorable earnings trends, compared to when the firms exhibited favorable earnings trend (6 and 7, respectively). In the case of Group II, however, the 10 negative signs on the net income factor suggest that the subjects may have generally relied more heavily on net income when the firm's management was favorably evaluated. The nine negative signs on the stockholders' equity factor for Group II suggest the possibility that the subjects generally relied more heavily on the factor when the item under consideration was a contingent loss.

The statistical significance of the above observations was tested using the Cochran test, the t-test, the Sign test and the Wilcoxon matched-pairs signed rank test.

The results are summarized in Table 10. For each modifying factor, the t-test yielded the only statistically significant results. The significance of the t-statistics suggest that the modifying factors did impact on utilization of each of the determinant factors. However, the effects were not systematic across subjects, as revealed by the lack of significance of the Sign test and the Wilcoxon test.

**Table 10. Comparisons Of The Omega-Square Values Across  
The Situational Models Constructed  
For Each Experimental Group**

Experimental Group I				
Materiality Factor	Sign Test	Wilcoxon Test	Cochran Test	T-test
Stockholders' equity	4	17.5	.62	3.48*
Total assets	6	43.5	.59	3.77*
Net income	4	22.0	.53	2.71*
Working capital	6	29.2	.58	2.92*
Experimental Group II				
Stockholders' equity	6	45.0	.53	5.13*
Total liabilities	6	31.0	.52	4.27*
Net income	4	23.0	.51	6.53*
Working capital	5	18.0	.59	4.19*
Experimental Group III				
Stockholders' equity	4	18.0	.53	5.86*
Assets/liabilities	4	24.5	.60	2.78*
Net income	5	31.5	.68	4.31*
Working capital	3	11.0	.51	2.72*

Note: The data reported are values of the test statistics. The \* indicates that the test statistic was significant at the 0.05 level.

### Judgment Consistency

Eight duplicate cases were randomly chosen and interspersed within each information set. Using Pearson product moment correlation, judgment consistency was assessed by correlating the auditor's responses

to the duplicate cases with the responses to the original cases. The coefficient ranged from .01 to 1.0. This indicates considerable variation in judgment consistency. However, the mean and median values were .82 and .88 respectively, suggesting, on average, a high degree of reliability in the auditors' judgments.

## DISCUSSION

This study has sought to provide insight into judgments of materiality. As expected, all materiality factors appeared to be perceived by the average subject as important indicators of materiality. Consistent with other materiality studies, net income was most important. When considering the aggregate analysis, the income factor explained, on average, 26 percent of the subjects' judgment variance. The modifying factors appeared to have the least impact on the materiality judgments, explaining no more than one percent of the variance of the aggregate models.

The relative importance of the remaining factors appeared to vary across judgment situations. The most notable change was in regards to the usage of the stockholders' equity factor. As reflected by the relative size of the omega-square values, it appeared to have its greatest influence on evaluating the materiality of contingent losses. It has been noted that when evaluating the materiality of loss contingencies, accountants and auditors consider the impact of any settlement on the firm's ability to continue operating in the event of an adverse judgment (FASB Discussion Memorandum, 1975, p. 74). The importance of the stockholders' equity factor, therefore, may be explained by the fact that, as a measure of net assets, it provides information concerning the firm's ability to meet additional obligations.

As reflected by the significance of the modifying factors, the information describing the firm and the judgment item was considered by the subjects in formulating materiality judgments. As hypothesized, the auditors were more likely to judge the item material whenever unfavorable information regarding the firm's earnings trend or management's credibility was received or whenever the item under consideration was an extraordinary loss. Such information also influenced the importance of the determinant factors. However, the test results obtained when comparing the omega-square values across the situational models suggest that the information did not produce systematic effects. That is, the subjects did not agree on the appropriate response to varying the levels of the modifying factors.

Of the four determinant factors, net income appeared to be least affected by the modifying factors. This is not surprising, given that the empirical literature has consistently shown net income to be the most important materiality factor. The overwhelming importance of net



income has held despite the fact that the nature of the judgment item as well as the characteristics of the firm and its environment have varied across studies.

When examining the effects of varying the judgment item on usage of the stockholders' equity factor, the results were marginally significant. When comparing omega-square values across situational models, the data indicate that, for the majority of the subjects of Group III, stockholders' equity was more important when considering contingent losses. These results support those obtained in the separate analyses of the data for Groups I and II. That is, stockholders' equity was the second most important factor for individuals of Group II who examined contingent losses, while it was the fourth most important factor to individuals of Group I who examined extraordinary losses.

The study also provided evidence concerning the quality of materiality judgments. On average, the intrajudge correlation coefficient was a relatively high .82. These results are interpreted as indicating that the auditors' judgments were reliable. The findings are similar to those obtained by other researchers examining different decision contexts (Ashton, 1974; Hoffman, 1960).

Mixed results were obtained relative to consensus. The "subjects" main effect appearing in the aggregate models was significant for each group, indicating differences in the mean probability responses of the subjects. However, the average correlation among their judgments was relatively high. This is consistent with the results reported by Ashton (1974), but is considerably higher than the average correlation reported in the judgment literature in psychology and accounting (Joyce, 1976; Dudycha and Naylor, 1976).

In summary, the present study corroborated results of prior studies reporting the net income factor as being the most important indicator of materiality. It has contributed to our knowledge of present day materiality decision making by providing evidence suggesting that auditors do consider the nature of the item and the surrounding circumstances in formulating materiality judgments. The results also suggest that auditors apply different decision rules which may cause a lack of judgment consensus in a real-world setting. To the extent that judgment consensus and consensus with respect to decision rules are recognized as necessary conditions for existence of expertise, it appears that steps should be taken by the profession to improve the quality of materiality judgments.

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