



Factors affecting teacher preactive content decision making  
by Sharon Strobel Patton

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education  
Montana State University  
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Abstract:

The problem of this study was to determine which factors were most important in influencing teacher preactive content decisions. The influencing factors used in this study were District Policy, , Teacher Belief, Student Achievement, Professional Opinion, and Community Pressure.

The study was conducted during the 1987-88 school year. The population consisted of middle school classroom teachers in the State of Montana.

To collect data, a simulation instrument was utilized. The instrument consisted of a series of fifty simulations each of which represented a possible context in which a preactive content decision might be made. The information used to make each preactive content decision in each simulation was a numerical rating given to each of the five influencing factors. The statistical method used to analyze the data was Judgment Analysis (JAN) which yielded policy groupings of participants and standard beta weights for each of the five influencing factors for each participant. Participants were also divided into demographic categories of size of district, years of experience, years of education, and subject area taught on the basis of a short demographic survey.

The JAN analysis indicated that there were three policy groupings of participants. These three policy groupings showed up in every demographic category. Policy group one used a multi-factor approach. In other words, participants in Policy 1 based their content change decisions on the influencing factors of Student Achievement, Teacher Belief, and District Policy. Policy group two used a single-factor approach. In other words, they based their decisions on Student Achievement. Policy group three used a dual-factor approach basing their decisions on Student Achievement and Teacher Belief. The most important factor in this study was Student Achievement followed by Teacher Belief and District Policy. Professional Opinion and Community Pressure were not important influencing factors.

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CONTENT DECISION MAKING

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This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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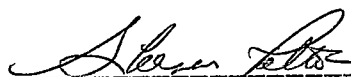
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## ABSTRACT

The problem of this study was to determine which factors were most important in influencing teacher preactive content decisions. The influencing factors used in this study were District Policy, Teacher Belief, Student Achievement, Professional Opinion, and Community Pressure.

The study was conducted during the 1987-88 school year. The population consisted of middle school classroom teachers in the State of Montana.

To collect data, a simulation instrument was utilized. The instrument consisted of a series of fifty simulations each of which represented a possible context in which a preactive content decision might be made. The information used to make each preactive content decision in each simulation was a numerical rating given to each of the five influencing factors. The statistical method used to analyze the data was Judgment Analysis (JAN) which yielded policy groupings of participants and standard beta weights for each of the five influencing factors for each participant. Participants were also divided into demographic categories of size of district, years of experience, years of education, and subject area taught on the basis of a short demographic survey.

The JAN analysis indicated that there were three policy groupings of participants. These three policy groupings showed up in every demographic category. Policy group one used a multi-factor approach. In other words, participants in Policy 1 based their content change decisions on the influencing factors of Student Achievement, Teacher Belief, and District Policy. Policy group two used a single-factor approach. In other words, they based their decisions on Student Achievement. Policy group three used a dual-factor approach basing their decisions on Student Achievement and Teacher Belief. The most important factor in this study was Student Achievement followed by Teacher Belief and District Policy. Professional Opinion and Community Pressure were not important influencing factors.

## CHAPTER 1

## INTRODUCTION

Since the early 1900s, the problem of identifying effective teachers has puzzled educational researchers. In their search for an answer, researchers have investigated various teacher variables. They have also employed various measures of teacher effectiveness. Their quest has led them from early investigations of teacher traits as they relate to teacher effectiveness ratings to present-day investigations of teacher decision making as it relates to student achievement (Cruickshank, 1985).

Initially, from the early 1900s to the 1950s, educational researchers investigated teacher variables called teacher traits. Base teacher traits--characteristics like honesty, friendliness, and punctuality--were gleaned from teacher rating forms (Rupley, Wise, and Logan, 1986). Researchers measured teacher effectiveness by employing supervisor ratings. If a supervisor rated a teacher as effective, that teacher was measured as effective for purposes of research (Rupley, Wise, and Logan). Educational researchers tried to establish correlations between teacher traits and teacher

effectiveness ratings hoping to predict teacher effectiveness from teacher traits (Cruickshank, 1985).

By the early 1960s, educational researchers had agreed upon the following conclusions: (1) Supervisors did not agree when they were asked to subjectively rate teacher effectiveness; (2) Traits by themselves did not predict teacher effectiveness nor could they be combined into one list or index which could be used to predict teacher effectiveness; (3) Few facts, if any, could be said to be established regarding teacher effectiveness for all children in all contexts. Researchers recognized that their investigations of teacher traits as they related to teacher effectiveness had not succeeded in identifying effective teachers (Cruickshank, 1985).

Researchers from the 1960s to the 1970s were no more successful (Rupley, Wise, and Logan, 1986). But, they did begin to experiment with teacher variables other than teacher traits and with a measure of teacher effectiveness other than supervisor ratings. They began to investigate teacher behavior as it related to student achievement (Rupley, Wise, and Logan, 1986).

During the 1970s, educational researchers continued investigations of teacher behavior as it related to student achievement. Researchers marched into teachers' classrooms armed with objective observation instruments for the purpose of correlating teacher behavior with student achievement.

This research became known as process-product research (Rupley, Wise, and Logan, 1986).

Process-product research led educational researchers to some promising conclusions regarding the identification of effective teachers. It also led researchers to their most recent research. As they investigated teacher behavior, researchers became aware of the important part teacher decision making played in that behavior (Duffy and Ball, 1986).

Since 1976, many educational researchers have been investigating teacher decision making as it relates to student achievement (Clark and Peterson, 1984). They have investigated the ways in which teachers make decisions and the kinds of decisions which they make. Many present-day researchers use student achievement as their measure of teacher effectiveness. This research relating teacher decision making to student achievement became known as teacher decision-making research (Clark and Peterson, 1984).

Researchers have identified two phases of teacher decision making, the preactive and the interactive phases (Shavelson and Stern, 1981). Teacher interactive decision making included decisions made during actual classroom interaction. Teacher preactive decision making included those decisions made before and after actual classroom interaction. This decision making guided future classroom interactions. For example, teacher preactive decision making included those

decisions made at the end of a classroom interaction which determined what would become the classroom interaction for the following day. Teacher preactive decision making included decisions regarding daily, weekly, term, and yearly interactions. It also includes decisions made for units and lessons (Clark and Peterson, 1984).

Shulman (1986) stated that educational researchers who wished to contribute to answering the question, "Effective teachers--who are they?" must investigate teacher preactive decision making. He urged researchers to investigate teacher preactive decision making particularly as it related to content decisions. Content decisions were decisions regarding (1) what will be taught, (2) to whom, (3) during what period of time, (4) in what order, and (5) to what standards of achievement (Clark and Peterson, 1984).

This study followed Shulman's urgings. It examined effective teaching by investigating teacher preactive content decisions.

#### Problem Statement

The problem of this study was to determine which factors were most important in influencing teacher preactive content decisions. The dependent variables for this study were decisions which teachers made in response to 50 simulations. In the simulations, teachers were asked to decide whether or not they would make content changes on the basis of

descriptions of five influencing factors. These five factors, the independent variables of this study, were district policy, teacher belief, student achievement, professional opinion, and community pressure.

The five influencing factors were described in the following manner for the purpose of this study:

1. District policy - The extent to which teacher preactive content decisions were influenced by district written policy statements, district curriculum guides, and district testing policy.

2. Teacher belief - The extent to which teacher preactive content decisions were influenced by knowledge of the subject area, interest in and enjoyment of the subject area, convictions about the importance of the subject area and the topics within the subject area, and expectations for student achievement within that area.

3. Student achievement - The extent to which teacher preactive content decisions were influenced by information regarding student skill levels provided by diagnostic tests, formative tests, summative tests, anecdotal reports, comments from parents, classroom assignments, student verbal responses, and teacher observations.

4. Professional opinion - The extent to which teacher preactive content decisions were influenced by recommendations from building principals, curriculum coordinators, teachers

in higher grade levels, teachers at the same grade level and subject area, and educational research.

5. Community pressure - The extent to which teacher preactive content decisions were influenced by the desires of a single parent or community member, a pressure group, the PTA, or the local newspaper.

#### Contribution to Educational Literature

Will research into teacher preactive content decision making contribute to identifying effective teachers? The researchers cited below think so.

Research into teacher preactive content decision making is research into teacher thinking. And, researchers agree that research into teacher thinking is necessary. For example, Clark and Peterson (1984) stated that research into teacher thinking was essential in understanding, predicting, and influencing teacher behavior. Allan A. Glatthorn (1987) asserted that the way teachers thought about their subject profoundly affected the way in which they taught that subject. Michael McKibbin (1978-79) concurred. He contended that teacher thinking influenced and was influenced by the nature of the content taught. He asserted that if teacher trainers were to have an effect on teacher thinking and, consequently, on student achievement, those trainers would have to teach teachers to think differently. Shavelson and Stern (1981) agreed. They cited two justifications for research into



teacher thinking. First, they stated that a solely behavioral model of teaching process was incomplete. It did not account for differences in teacher behavior which arose from variations in goals, judgments, and decisions. Secondly, they stated that research linking teacher behavior to teacher thinking provided a basis for teacher education and for instructional innovations.

More specifically, researchers called for investigations into teacher decision making. In fact, as has been noted, this research has become the most recent research trying to identify effective teachers. McKibbin (1978-79) highlighted the teacher decision-making component of teacher thinking when he proposed that teacher trainers direct their energies toward those critical incidents in teaching when specific decisions were made. Bush acknowledged the importance of teacher decision making when he declared that awareness of the sources of teacher decisions could provide insight into the process of teacher training. Duffy and Ball (1986) asserted that making decisions is of paramount importance in teaching. They believed that teachers must be trained to make decisions as professionals rather than as technicians. Shavelson and Stern (1981) insisted that training of teachers must emphasize training in decision making. Teachers must be made aware of those decision-making strategies which they used and must be encouraged to substitute effective ones for ineffective ones. Finally, Rupley, Wise, and Logan (1986) indicated that

research into this important component of teacher thinking had only recently been recognized as legitimate.

Researchers, as has been noted, broke down the decision-making component of teacher thinking into two phases. Those two phases were the preactive and the interactive phases. Putnam and Duffy (1984), in describing the decisions of one effective reading teacher, explained that his preactive decisions accounted for his effectiveness, i.e. his success in producing students who achieved well on standardized reading tests. They contended that he made virtually all of his critical decisions during the preactive decision-making phase of his teaching. Yinger (1980) noted that there have been few studies done on this phase of teacher decision making even though research has pointed to its importance.

Within the phase of preactive decision making, researchers have found it necessary to limit their investigations. As has been noted, Shulman (1986) suggests that researchers should investigate teacher preactive content decision making. Why should researchers investigate content decisions? Rosenshine (1978) emphasized the importance of content in determining student achievement--the measure of teacher effectiveness. He declared that content was one of two variables most highly correlated with student achievement. Frederick J. McDonald (1976) agreed. He insisted that the amount of content covered was a critical variable in student achievement. Shavelson and Stern (1981) stated that one of

the most critical decisions affecting student achievement was the decision about what content should be covered. Shulman asserted that mere content knowledge was not sufficient to make an effective teacher; researchers must pay as much attention to the content aspects of teaching as they pay to the process aspects of teaching. Duffy and Ball pointed out that researchers must look for decision making that went beyond process concerns and must investigate teacher content decisions. Zoharik (1975) proposed that the place of content in preactive decisions be more fully researched.

Floden et al. (1986) indicated future uses for teacher preactive content decision research. As a result of such research, publishers of instructional materials could become more aware of the need to monitor content variables. Teacher educators could become more aware of the need to address content decision making. Finally, as a result of research into teacher preactive content decision making, researchers could become more aware of the importance of differences in teachers in terms of their decision-making abilities and their content decisions.

Research into teacher preactive content decision making could contribute to identifying effective teachers in several ways. Such research can eventually indicate differences in the decisions of effective and ineffective teachers as measured, for example, by student achievement. It could have the potential for indicating the ways in which effective

teachers interact with instructional materials, teacher supervision, and teacher in-service. It could direct future researchers toward investigations which would contribute to a more complete identification of effective teachers.

This study contributed to an identification of effective teachers by contributing to researchers' descriptions of preactive content decision making. It contributed to a description of the factors which influenced teacher preactive content decisions for Montana public school teachers during the 1987-88 school year. It complemented research already completed at Michigan State University which described factors which influenced the preactive content decisions of sixty fourth grade mathematics teachers in Michigan during the years from 1978 to 1987 (Porter et al., 1986).

Although the contribution of the research conducted for this study was small when compared with the potential contribution of future research, it was essential. It provided a necessary building block with which future researchers could construct a complete description of teacher preactive content decision making. That description could contribute to the completion of the descriptions of teacher preactive decision making, teacher decision making, and teacher thinking. With those descriptions completed, researchers could then begin to relate them to teacher effectiveness as measured by, for example, student achievement. As researchers investigated the relationship

between these descriptions and teacher effectiveness, they could contribute to the identification of effective teachers.

### General Questions

1. Was there more than one ranking of the five influencing factors used by the teachers in this study when they made their decision to change or not to change their content?
2. Which of the five influencing factors used in this study was most important in influencing teachers' decisions to change or not to change their content?
3. How did the ranking of the five influencing factors used by teachers in this study to decide whether or not to change their content compare when those teachers were grouped into categories according to the size of the district in which they teach, the subject area taught, their number of years of experience, and their level of education?

### General Procedure

Following is a description of the procedures which were used for the research described in this study. During the 1987-88 school year, an instrument which presented simulated preactive content decision situations was sent to 192 certified middle school teachers from Montana who were randomly selected by school. Middle school was defined as any school which was comprised of grades 5-9.

The instrument required that the selected teachers indicate whether or not, on the basis of five influencing factors, they would change their content. The interactions of the influencing factors were presented as numerical ratings using a scale from 0 to 100. A factor rating of 100 indicated a strong impetus; a rating of 0 indicated no impetus.

District policy which provided a strong impetus for change on teacher preactive content decision making was district policy which mandated that teachers adhere to the curriculum guides prepared by the district as part of the district's written policy, which mandated that teachers teach from designated textbooks and be on specific pages on specific days as part of its curriculum guides, and which mandated district-wide testing and comparison of test scores by classroom and school at the end of each semester as part of its written policy. A strong district policy received a rating of 70-99. District policy which provided a weak impetus for change on teacher preactive content decision making was a district policy which suggested goals and texts for teachers as part of its written policy. It had no curriculum guide and did not mandate district-wide testing. It received a rating of from 30-1.

Teacher belief which provided a strong impetus was teacher belief which was founded on a complete knowledge of the subject area, an unshakable conviction that the subject area was important to students and that each topic taught

within that subject area was important to students, and the expectation that every student could succeed in the subject area if given appropriate instruction and sufficient time. Such a policy received a rating of from 70-99. Teacher belief which provided a weak impetus was teacher belief which was founded on a shaky knowledge of the subject area, a concern about the importance of the subject area to students and a concern about the importance of many of the topics taught within that subject area, and the expectation that many students could not succeed in the subject area. It received a rating of 30-1.

Student achievement which provided a strong impetus for change on teacher preactive content decisions was student achievement which was measured by diagnostic tests at the beginning of each topic within the subject area. It was student achievement which was regularly measured by formative tests as well as summative tests. It was also measured by anecdotal reports, student verbal responses, homework and classroom assignments, comments from parents, and teacher observations. Once it was measured, it was acted upon by the teacher. For example, the teacher adjusted what was taught to whom during what time period in what order and to what standard of achievement on the basis of student achievement. This type of policy received a rating of 70-99. Student achievement which provided a weak impetus for change on teacher preactive content decision making was student

achievement which was only measured by summative tests. Once measured, it was not acted upon by the teacher. Instead, the teacher moved on to new topics according to a predetermined plan. That plan could be a district curriculum guide, for example. This policy received a 30-1 rating.

Professional opinion which provided a strong impetus for change on teacher preactive content decision making was professional opinion which was in agreement (principal, curriculum coordinator, teachers, and research agreed), prescriptive (stated clearly and concisely what should be taught), and carried rewards and sanctions for compliance. This type of policy received a 70-99 rating. Professional opinion which provided a weak impetus for change on teacher preactive content decision making was professional opinion which was conflicting, was vaguely stated, and carried with it no rewards or sanctions for compliance. This type of policy received a 30-1 rating.

Community pressure which provided a strong impetus for change on teacher preactive content decisions was community pressure which was unified, i.e. all segments of the community concur; specific, i.e. told teachers exactly what needed to be taught; and powerful, i.e. threatened to punish, perhaps through law suit or dismissal, teachers who failed to conform. This type of policy was rated from 70-99. Community pressure which provided a weak impetus for change on teacher preactive



content decisions was community pressure which was fragmented, generalized, and powerless. It received a rating of 30-1.

Each teacher was presented with 50 simulations consisting of five numerical ratings--one for each influencing factor. Teachers were asked to decide whether or not they would change their content for each one of the simulations. They expressed their decision in the form of a percentage indicating the percentage of chance that they would change their content. Table 1 presents an example of a simulation.

Table 1

## A Sample Simulation

1. District Policy	<u>50</u>	100	High likelihood that you would change your content.
2. Teacher Belief	<u>90</u>	75	
3. Student Achievement	<u>80</u>	50	Your rating: _____
4. Professional Opinion	<u>40</u>	25	Low likelihood that you would change content.
5. Community Pressure	<u>5</u>	0	

The rankings of influencing factors, or policies, of the participating teachers were identified by the use of the Judgment Analysis Technique (JAN). Teachers whose policies were similar were grouped into clusters. Each cluster of teachers was described as having one policy. Because more than one cluster of teachers occurred, the policies of the clusters were compared through narrative description. The

clusters were compared on the basis of which influencing factors were most important for the teachers within the clusters when making preactive content decisions.

Teachers were also grouped into categories on the basis of the size of the district in which they taught, the subject area they taught, the number of years of experience which they had, and the level of education which they had attained. Within each category, teachers were separated into divisions. The policies of teachers within those divisions were compared on the basis of their rankings of influencing factors to see if any similarities or differences existed. Since similarities and differences did exist within divisions of teachers, the policies for the divisions were compared in a narrative.

#### Limitations and Delimitations

1. Since it was impossible to include all of the factors influencing teachers when they make their preactive content decisions, only five were included.
2. Those five influencing factors were general in nature. If any of those five were found to be important in influencing teacher preactive content decisions, they would require further investigation in future research. That research would need to attempt to determine which aspects of the influencing factors were most important in influencing teacher preactive content decisions.
3. Although inferences could be made, this research did not

3. Although inferences could be made, this research did not investigate what teachers actually decide in preactive content decision-making situations. It only indicated what they did in simulated situations.
1. The research was limited to data collected during the 1987-88 school year.
2. The population for this study was limited to middle school classroom teachers certified to teach in Montana public schools.

#### Definitions

Decision making: Making decisions meant choosing alternative courses of action among alternative courses of action either before or during actual teaching based on inferences resulting from cues present in a learning environment.

Preactive decision making: Decision making which occurred outside of an actual teaching situation (Duffy and Ball, 1984).

Preactive content decision making: Preactive content decision making occurred prior to actual teaching situations and as concerned with choosing among alternative courses of action with regard to what to teach to which students during what period of time, in what order, and to what standards of achievement (Porter et al., 1986).

## CHAPTER 2

## REVIEW OF RELATED LITERATURE

Introduction

Identifying and investigating the variables which contribute to teacher effectiveness has occupied educational researchers since the early 1900s (Cruickshank, 1985; Rupley, Wise, and Logan, 1986). One of these variables--an important one according to recent research--was teacher thinking (Joyce, 1980; Shavelson, 1983; and Shavelson and Stern, 1981). As they have investigated teacher thinking, researchers have identified several of its components. The components of teacher thinking which were examined in this review of the literature were teacher decision making, teacher preactive decision making, and teacher preactive content decision making. The examination of these components proceeded from an examination of the most inclusive, teacher thinking, to the most specific, teacher preactive content decision making.

The research reviewed in this chapter was based on three assumptions. The first assumption was that teachers were rational professionals who must plan about complex environments. The second assumption was that there were

certain aspects of teacher behavior that were stable over time. The third was that there are teacher behaviors which were related to student achievement (Joyce, 1978-79).

### Teacher Thinking

As a result of a year-long, descriptive study conducted during the 1976-77 school year on teachers at South Bay Elementary School in South Bay, Massachusetts, Bruce Joyce (1980) drew the following conclusion: The first task in analyzing teacher decision making, preactive decision making, and preactive content decision making was to analyze teacher thinking. Joyce described teacher thinking as consisting of four parts: (1) the flow of cues, (2) the teachers' perception of those cues which transformed them into stimuli, (3) the teachers' interpretation of those stimuli, and (4) the teachers' response behaviors to the interpretations of those stimuli.

According to Joyce (1980), teacher thinking commenced with a flow of cues. The cues within a flow could be numerous and diverse. Theoretically, a teacher could perceive from zero to 100% of the cues presented within the flow from a given environment. Realistically, a teacher rarely perceived 100% of the available cues. Instead, only a few of the cues in a given environment were perceived. These cues become stimuli to the teacher.

Not only did teachers fail to perceive 100% of the cues available in a given environment, but those teachers also failed to process all of the available stimuli. A teacher could "mask" certain stimuli by covering over--forgetting almost immediately--those stimuli. The choice of whether or not to "mask" stimuli was made on the basis of a determination of the potential relevance of those stimuli to the teacher. Joyce (1980) described relevant stimuli as those stimuli which had enough meaning to the teacher to require further thought. This differentiation among stimuli on the basis of their possible relevance was called "selective attention." In complex environments like the ones in which teachers often found themselves, teachers could facilitate this process of "selective attention" by developing structures which helped to focus their attention toward relevant stimuli.

Joyce (1980) suggested that the attention-focusing structures of teachers must have considerable impact on the types of stimuli they choose as relevant. Because there was considerable variety in the attention-focusing structures used by various teachers, there was significant variety in the types of stimuli chosen as relevant. Certainly, the policies used by teachers when making preactive content decisions qualified as attention-focusing structures and had considerable impact on the types of stimuli which those teachers chose as relevant.

Once perceived, stimuli were interpreted (Joyce, 1980). Inferences were drawn from the stimuli. These inferences could be in the form of judgments, expectations, or hypotheses (Shavelson and Stern, 1981). Forming judgments, for example, was the process of evaluation or categorization. It has been called classification, selection, or estimation. Forming judgments was more than the simple process of applying rules; it went beyond available stimuli by integrating new stimuli as the process continued (Shavelson, 1983). Judgment, insisted Joyce, permeated the interpretation phase of teacher thinking.

In phase four of teacher thinking, asserted Joyce (1980), stimuli were acted upon. The action which resulted from the process of cue flow, perception, and interpretation was in the form of teacher behavior. That behavior might be overt, covert, immediate, or delayed. But it was always demonstrative of teacher decision making. In other words, the cue flow, perception, and interpretation resulted in teacher decision making.

#### Teacher Decision Making

Are teachers decision makers? Shavelson and Stern (1981) contended that it seemed reasonable to assume that teachers were decision makers and that their decisions were one of the factors that influence student achievement. Madeline Hunter (1987) affirmed that teaching was decision making. Bush

(1986), in a study conducted at the University of Houston on the sources of teaching decisions of five preservice teachers, concluded that teachers could be viewed as rational, thinking individuals who reached instructional goals through decisions.

Yet, Shavelson and Stern (1981) suggested that while teachers might be decision makers, they were not rational decision makers. The rational, prescribed model of decision making should, for example, follow this pattern: (1) Specify objectives, (2) Specify student entry level skills, (3) Select and organize learning activities to move students from entry level skills to objectives, and (4) Evaluate outcomes to improve planning (Shavelson and Stern, 1981). This was not the model generally used in teacher decision making. There was, Shavelson and Stern (1981) concluded, a mismatch between the unpredictable and complex environment in which teachers found themselves and the prescriptive instructional decision-making model.

Besides not following the rational decision-making model, teachers did not use actual cues for making decisions. Instead, according to Shavelson (1983), teachers based their decisions on their perceptions and interpretations of those cues. Those perceptions and interpretations, as have been noted, resulted from the use of attention-focusing structures like policies. Shavelson further contended that teachers were unaware of their policies. Teachers also tended to use their beliefs about education as the basis for their interpretations



and perceptions in the absence of relevant cues. In conclusion, Shavelson asserted that the depiction of teachers as rational decision makers was more descriptive of their intentions for their decision making than of their actual behavior.

He suggested that the lack of rationality in decision making was due, at least in part, to the demands of the decision making situations. He continued by stating that a teacher's capacity for making rational decisions in an unpredictable, complex environment like the teaching environment was probably small compared to the enormous power of a model like the rational decision-making model. Finally, he concluded that teachers behave rationally with respect to the simplified models of reality which they constructed with the help of their attention-focusing structures. He described teacher decision-making behavior as reasonable rather than rational.

Duffy and Ball (1986) went even further than Shavelson by declaring that reading teachers make very few decisions. Furthermore, they proposed that research did not provide any evidence of a direct link between teacher decision making and teacher effectiveness. Yet, they asserted that effective teachers did make decisions. They submitted that the lack of research linking decision making to teacher effectiveness resulted from incomplete descriptions of the processes involved rather than from the lack of a link. They presented

three examples of incomplete descriptions which they found in teacher decision-making research. First, researchers might have incorrectly described teacher thinking. Following Shavelson's example (1983), they concurred that the rational model of decision making might very well be idealized and inappropriate. Second, researchers might not have accurately described the complexity of the decisions which teachers must make and might have, in fact, missed important kinds of decisions which teachers must make. For example, little research had been done on content decisions according to Duffy and Ball. They suggested that this omission might well have occurred because of the lack of a precise definition of instruction. Third, researchers might not have accurately described the constraints under which teachers must make decisions. For example, if teachers must use mandated textbooks, they had little opportunity to make content decisions. In conclusion, Duffy and Ball quoted Shavelson's judgment that teachers behaved reasonably rather than rationally.

#### Teacher Preactive Decision Making

Obviously, a more complete description of teacher decision making was necessary. Several researchers have proposed more precise descriptions. Bush (1986) offered a three-way differentiation among types of decisions. Decisions could be preactive, made prior to teaching; interactive, made

during teaching; or postactive, made after teaching. Duffy and Ball (1986) followed their own suggestion by proposing the following differentiation among types of decisions. Decisions might be procedural or substantive. Procedural decisions were concerned with maintaining an activity flow by managing student behavior, time distribution, procedures, instructional pace, student responses, and task completion. They usually occurred during the interactive phase of decision making. Substantive decisions were concerned with content. Content decisions usually occurred in the preactive decision-making phase and emphasized what would be taught, the desired outcomes of the teaching, the materials which would be used, the illustrations, and the models or demonstrations which would be employed.

Duffy (1984) described his role as a participant in a study which was reported by the Institute for Research on Teaching at Michigan State University in August of 1984. During this study, which had as one of its objectives to determine whether or not Shavelson's and Stern's models of preactive and interactive decision making could actually be used to describe a teacher's behavior, Duffy's fellow researcher Joyce Putnam describes Duffy as he taught two reading groups in a third/fourth grade reading classroom in a low-to-middle class neighborhood school in a midwestern city. He and Joyce Putnam reported the findings from this study. Their report further clarified the definition of

teacher decision making. They confirmed that, indeed, the distinction between preactive and interactive decision making was an accurate one. They agreed with Shavelson and Stern (1981) that postactive decision making actually cycled into preactive decision making and that there was no real distinction between those two types of decision making.

They described four phases of preactive decision making. In the first phase, Duffy decided how to assess his students individually in order to determine each one's (1) general interests and interest in reading, (2) fluency, (3) sight word recognition, (4) ability to predict or generalize based on personal experience and on what has been read, and (5) ability to employ reading strategies for comprehension. The preactive decisions made by Duffy in phase one provided him with the stimuli used as the basis for his preactive decisions in phase two.

Phase two preactive decisions involved procedural and substantive decisions like (1) what would be taught to whom, (2) what materials would be used by whom, (3) what type of instruction would be used initially, and (4) what management and organization routines would be established. In phase three, Duffy's preactive decisions dealt with (1) management of one group in particular, (2) explicit explanations for each individual lesson, and (3) correct practice and application of the content being taught. Finally, in phase four, Duffy focused his preactive decisions on the coherence of individual

lessons as they were integrated into his long-term plans.

Duffy and Ball (1984) further delineated the description of preactive decision making by identifying it as being concerned with content, what would be taught; instruction, how it would be taught; management, organization; and student behavior, completing assignments. They proposed that a strong relationship existed between these preactive decisions and phases of decision making and the subsequent interactive decisions and phases of interactive decision making.

Robert Yinger (1980) from the University of Cincinnati described a study which he conducted which was similar to that of Duffy and Ball. In reviewing the observations he made during his year-long study of a teacher in a combined first and second grade classroom in a Michigan school district, Yinger drew several conclusions about teachers' preactive decision making. One of them, which he reported in an 1980 article in *The Elementary School Journal*, was confirmed by the Duffy and Ball study. Teachers did make instructional decisions. Those decisions were, as Duffy and Ball contended, made during the preactive and interactive phases of teaching. But, the most important ones were made during the preactive phase. The decisions were both procedural and substantive in nature.

Teacher Preactive Content Decision Making

Zahorik (1974) explained that content decisions--decisions regarding the nature of the subject matter to be taught--were one of the most important preactive decisions that teachers could make. He described content decisions as having been made by almost three-fourths of the teachers in a study of 194 teachers from a large metropolitan school district which he conducted to determine what types of preactive decisions teachers made. Preactive content decisions were described as having been made first by more teachers than any other decision. Most of the teachers in this study were described as asking this question first, "What is the range and particulars of the subject matter to be taught?"

Porter et al. (1986), as a result of a project on teacher decision making completed by them for a Michigan State research project, concluded that teachers determined what was taught in school. Preactive content decisions made by teachers were a major influence on school effectiveness as measured by student achievement because those decisions, in effect, determined what it is that students would learn.

These researchers proposed that preactive content decisions could be divided into these five categories: (1) what to teach, (2) for what length of time, (3) to which students, (4) when and in what order, and (5) to what

standards of achievement. Collectively, these five preactive content decisions determined student opportunity to learn which was, according to these researchers, a major influence on student achievement. These authors insisted that there was a direct link between teacher decision making--at least at the preactive content level--and teacher effectiveness as measured by student achievement.

Who are effective teachers? They are teachers who make effective decisions at the preactive content level of decision making. Researchers are in the process of describing how those effective decisions are made, which of them are more or less effective, and in what ways those decisions affect student achievement.

The research conducted for this study contributed to that description by investigating how preactive content decisions were influenced by the five factors of district policy, teacher belief, student achievement, professional opinion, and community pressure. These factors have been recommended as factors which need to be investigated by Floden et al. (1986), researchers at Michigan State University who have been investigating teacher preactive content decision making for the Institute for Research on Teaching sponsored by the National Institute of Education.

The influencing factor of district policy was an important one in the research conducted by Floden et al. (1986). They discovered that, while most district policy

regarding content is relatively weak, it has a strong influence on teacher preactive content decision making.

Policies varied in their strength according to four criteria: prescriptiveness, consistency, authority, and power. Prescriptiveness referred to the extent and specificity of a policy. The more extensive the policy and the more specifically it described what teachers were to do, the more strength that policy was said to have had. For example, a policy mandating a textbook for use in each classroom is weaker than a policy mandating a textbook and instructing teachers to closely follow that textbook starting at the beginning and teaching everything in the text to its completion.

Consistency referred to the degree to which different content policies within a district support or contradict each other. For example, a mandated English textbook might be tied to English objectives which specified pages within the textbook on which material for each objective was presented.

Authority referred to the degree to which a policy was tied to law, social norms, expert knowledge, or well-known individuals. Policies which were supported by research, advocated in teaching journals, and designed by individuals within the district who were respected by that district's teachers have more strength than policies which were arbitrary, untested, and designed by individuals within the district who were not known or respected.



A final criterion for judging the strength of a policy, according to Floden et al. (1986), was power. Power referred to the degree to which the policy was tied to rewards and sanctions. A policy which mandated that a teacher report progress in a mandated textbook to a department head or principal had more power than a policy which merely mandated the textbook.

Floden et al. (1986) also found that teacher belief was a strong factor influencing teacher preactive content decisions. In fact, in their first study (Floden, Porter, and Schwille, 1980), they found teacher belief to be the strongest influence on teacher preactive content decisions. Floden et al. attributed differences in the strength of teacher belief as it affects teacher preactive content decisions to differences in subject area knowledge, interest and enjoyment in the subject area, convictions about the importance of the area and topics within the area, and expectations for what students can accomplish within the area. Support for the importance of teacher belief in teacher decision making was found in articles by George M. Schuncke (1981), Donald R. Cruickshank (1985), Christopher M. Clark and Penelope L. Peterson (1984), Richard Shavelson and Paula Stern (1981), and Gerald G. Duffy (1982).

Many researchers have commented on the importance of using student achievement data when making teaching decisions (Schuncke, 1981; Meisels, 1986; Salzer, 1986; Rosenshine,

1978; Hartley, 1976; Duffy and McIntyre, 1980; Bloom, 1984; Joyce, 1978-79; Tindal et al., 1981; and Morine-Dersheimer, 1978-79). Floden et al. (1986) likewise agreed that student achievement data influenced teacher preactive content decisions although they found the influence to be minimal.

Floden et al. (1986) found community pressure, especially parent pressure, to be more influential than student achievement. The strength of parental pressure seemed to be linked to the socioeconomic status of the parents. In schools of higher socioeconomic status, parents had more influence than in schools of lower socioeconomic status. Community pressure in the form of newspapers which printed local test results by grade level and building did not seem to have a strong effect on teacher preactive content decision making. The following authors have also emphasized the importance of community in influencing teacher decision making: Robert J. Yinger (1980), Richard J. Shavelson and Paula Stern (1981), Christopher M. Clark and Penelope L. Peterson (1984), and Allan A. Glatthorn (1987).

Finally, Floden et al. (1986) found that peers, especially principals, had very little influence on teacher preactive content decision making. Despite literature which emphasized the importance of principals as instructional leaders, they did not find principals to be a major influence on teachers' decisions about what to teach. They found that principals tended to leave content decisions to teachers and

to policymakers at higher levels, have little knowledge about district content policies, and show little interest in carrying out those policies. Other authors have suggested that peers did influence teacher decisions (Duffy and McIntyre, 1980; Bush, 1986; Glatthorn, 1987; Goodlad, 1987; and Bush, 1986).

## CHAPTER 3

## PROCEDURES

Introduction

The problem of this study was to determine which factors were most important in influencing teacher preactive content decisions. This chapter described the procedures which were followed in this study. It was divided into these sections: Population Description and Sampling Procedure, Influencing Factors, Method of Analysis, Method of Data Collection, Method of Data Organization, Research Questions, Analysis of Data and Precautions taken for Accuracy.

Population Description and Sampling Procedures

The population for this study consisted of certified public school teachers in the State of Montana who taught in middle schools during the 1987-88 school year. Middle schools were those schools consisting of any combination of grades 5-9.

A sample of 192 teachers was randomly selected from their buildings to participate in this study. They were selected by their building principals. Each of Montana's 64 middle

school principals was contacted. They were asked to randomly select 3 teachers from their schools and ask that those teachers complete the simulation instrument.

### Influencing Factors

From this study's review of literature, five factors were selected as being important in influencing teacher preactive content decisions. These five factors were district policy, teacher beliefs, student achievement, professional opinion, and community pressure. Four demographic factors relative to teachers were also selected for study. They were area of teaching, education, size of district, and number of years of experience.

### Method of Analysis

JAN (Judgment Analysis) was the statistical technique used in this study to determine which factors were most important in influencing teacher preactive content decisions. This technique has been effectively used to capture and cluster the policies of raters (Dudycha, 1970). "Capturing" the policies of a rater resulted in a researcher being able to predict the decisions of a rater from the known characteristics of the factors he was required to rate (Dudycha, 1970). "Clustering" the policies of raters resulted in a researcher being able to group raters on the basis on the homogeneity of the policies which they use (Dudycha,

1970). The "policy" of a rater referred to that rater's regression equation which identified the importance placed on the influencing factors by the rater. A policy resulted in a decision made by a rater when faced with a complex situation consisting of several factors (Dudycha, 1970). A "rater," for purposes of this study, was a teacher. A "situation," for purposes of this study, was a simulation.

JAN was an effective statistical technique for researchers to use when trying to determine policies which might be present in decisions which were made collectively or individually (Houston and Stock, 1969). According to Anderson (1977), JAN distinguished between factors influencing decisions in simulations more clearly than did ranking or rating. This technique had been applied in many studies and had been found to provide valid and reliable information (Christal, 1968).

The validity of this statistical technique lay in the validity of the influencing factors chosen for study. A review of the literature established those factors which were most likely to be important influencing factors. The reliability of this statistical technique lay in the consistency of a rater's policies. The more consistent a rater's policies were across all of the simulations contained within an instrument, the more reliable was information provided by the JAN technique.

In this study, teachers were presented with 50 simulations contained in a survey-type instrument. The simulations consisted of variations on the five influencing factors selected for use in this study. Teachers responded with a percentage rating for each simulation. The percentage rated the chance, given a variation of the five factors presented for a particular simulation, that a teacher would change a preactive content decision.

After making their ratings, teachers were asked to return the simulation instruments to the researcher for analysis by JAN. The JAN procedure consisted of two stages. In the first stage, the JAN technique acted on the assumption that each teacher had an individual policy (Keelan, Houston, and Houston, 1977). A multiple regression equation was developed for each teacher which ordered the five factors according to their importance in accounting for the variability in that teacher's ratings. JAN also determined a correlation ( $R^2$ ) for each teacher which expressed the consistency of a teacher's ratings across all of the simulations (Dudycha, 1970).

In the second stage of analysis, JAN determined how teachers clustered together in terms of the similarities of their ratings. First of all, the over-all  $R^2$  was computed for all of the teachers' ratings. The policy of the teacher whose  $R^2$  was closest to the over-all  $R^2$  was identified. An  $R^2$  was then computed for the identified policy plus each of the remaining  $N-1$  (total number of teachers minus one) teachers'

policies. The combined policy which resulted in the smallest drop in  $R^2$  when compared with the policy of the teacher whose  $R^2$  was closest to the over-all  $R^2$  was identified. That combined policy then became the policy with which the remaining  $N-2$  individual policies were combined. Again, the combination of three policies which resulted in the smallest drop in  $R^2$  when compared to the preceding combination of two policies became the policy with which all of the remaining  $N-3$  policies were combined. This process continued until the drop in  $R^2$  between a combined policy and that combined policy plus a remaining policy exceeded .05. All the teachers whose policies had been included in the combined policy prior to the combination which resulted in the unacceptable drop were considered, for the purposes of this study, to have similar policies which they used when making preactive content decisions. The process was then repeated with the remaining teachers' policies until all of the teachers had been clustered into policy groups.

Once teachers had been clustered together according to policy groups, they were categorized into different demographic groups; for example, teachers from districts of 50,000+ people were categorized together. Teachers from schools of 49,999-20,000, 19,999-5,000 and 4,999 were also categorized together. Policy groups were formed for the different divisions of teachers. The policies of those divisions were compared in a narrative.



Method of Collecting Data

A packet including a cover letter briefly describing the study, was sent to each of Montana's 64 middle school principals. The packet also contained explanations of the process to be followed, examples of simulations, explanations of influencing factors, short surveys for the purpose of gathering demographic data, simulation instruments, and stamped, self-addressed envelopes to be given to the selected teachers.

Each of 50 simulations consisted of a numerical rating from 1 to 100 for each of the five influencing factors. The five influencing factors were the independent variables for this study. These five factors had been determined to be important in teacher preactive content decision making from a review of the literature. They are the following:

Table 2  
Influencing Factors

Number	Factor	Abbreviation
1	District Policy	DP
2	Teacher Beliefs	TB
3	Student Achievement	SA
4	Professional Opinion	PO
5	Community Pressure	CP

The numerical rating for each factor in a particular simulation was determined by computer. As was shown in Table 3, the intercorrelations of simulation factor ratings was close enough to zero to be acceptable for the JAN statistical technique (Dudycha, 1970).

Table 3  
Intercorrelations of the Factors

Factor	1	2	3	4	5
DP	1.0000				
TB	.09	1.0000			
SA	-.05	.00	1.0000		
PO	.00	-.03	.07	1.0000	
CP	.16	.02	-.25	.05	1.0000

The means and standard deviations for the simulation factor ratings was shown in Table 4.

Table 4  
Means and Standard Deviations of Simulation Factor

Factor	Mean	Standard Deviation
DP	51.04	29.81
TB	51.30	28.19
SA	49.70	28.76
PO	49.48	26.46
CP	49.50	28.35

Table 5 presented a sample simulation.

Table 5  
Sample Simulation

<u>SIMULATION FACTOR RATINGS</u>		<u>RATING SCALE</u>	
District Policy	<u>20</u>	100	High likelihood that you would change your content
Teacher Beliefs	<u>60</u>	75	Your rating: _____
Student Achievement	<u>40</u>	50	Low likelihood that you would change
Professional Opinion	<u>10</u>	25	
Community Pressure	<u>10</u>	0	

The survey instrument was short. It was included in the packet which was mailed to each teacher selected for this study. It asked teachers for their names, school district, size of school district, subject taught, level of education, and number of years of experience.

#### Method of Organizing Data

The data obtained from this study was organized in tables. The tables described the mean and standard deviation for each teachers' ratings, the correlations between the simulation ratings and the influencing factors for each teacher, the stages of the JAN procedure for clustering teachers' ratings, and correlations between the simulation ratings and the influencing factors by policy for each

teacher. Tables were also presented describing the above information for each of these divisions of teachers: teachers from districts with 50,000+, 49,999-20,000, 19,000-5,000 and 4,999 students; teachers who teach English, Social Studies, Mathematics, Art, Home Economics, Physical Education, Special Education, Industrial Arts, Music or Science; teachers who have taught 15+, 14 to 4, or 3-; and teachers who have BAs/BSs, MEds/MAs/MSs, Masters plus 45, or Ed.D.

### Research Questions

- Question 1: Was there more than one policy used by teachers in determining their preactive content decisions?
- Question 2: What was the importance placed on each of the five factors by teachers in making preactive content decisions?
- Question 3: How did the policies of teachers compare when teachers were categorized by size of district, area of teaching, level of education, or number of years of experience?

### Analysis of Data

The computer services at Montana State University Testing Service were used to perform the JAN analysis. An a priori minimum drop of .05 in R2 from one stage to another indicated a significant change in policy.

## CHAPTER 4

## ANALYSIS OF DATA

Introduction

The data reported in this chapter are arranged in the following categories: populations and samples, research questions, hypotheses, and summary.

Populations and Samples

The population for this study consisted of certified public school teachers in the State of Montana who taught in middle schools during the 1987-1988 school year. Middle schools were defined as those schools consisting of grades 5-9 or any combination of grades falling within grades 5-9. A total of 64 schools in Montana consequently qualified as middle schools.

Each middle school principal was asked to randomly select, for participation in this study, three teachers from his/her school by identifying the first, middle, and last teacher on the school's roster. He/she was then asked to distribute study packets to those three teachers. From the 64 qualifying middle schools a total of 192 teachers thus became potential participants in this study.

Out of the 64 middle school principals who were sent survey packets, 44 principals responded. Forty-two of those principals agreed to distribute packets to their teachers. Out of the 126 possible teacher participants in this study, 110 responded. Of those 110 participants' packets, 107 were valid and, consequently, usable for this study. Packets were considered to be invalid if they were improperly or incompletely filled out. These 107 valid packets resulted in a 55.7 rate of return out of 192 possible packets.

The demographic surveys contained in the valid packets yielded the following description of the participants in this study. Eleven of the participants came from communities of 50,000 or more; seven came from communities of 49,999 to 20,000 people; seventeen came from communities of 19,999 to 5,000 people; and sixty-four came from communities of 4,999 or fewer. Fifty-one participants had 15 or more years of teaching experience; twenty-eight had 14 to 10 years experience; thirteen had 9 to 4 years; and eleven had 3 or fewer years of teaching experience. Three participants had earned their Ed.D. degrees; nineteen had their M.A.+ degrees; twenty-two had their M.A. degrees; two had their B.A./B.S.+ degrees; and sixty-one had their B.A./B.S. degrees. Thirty of the participants taught English; fourteen taught math; eleven taught science; three taught music; fourteen taught social studies; three taught art; two taught home economics; three taught industrial arts; three taught physical education;

five taught special education; and nineteen taught multiple subjects.

### Research Questions

The research questions in this study were investigated using the Judgment Analysis (JAN) technique. The standard beta weights, in the prediction equation for each policy, indicated the importance of each influencing factor as expressed by the participating teachers. The R<sup>2</sup> value indicated the consistency of the raters in the prediction equation. The data are presented in tables.

#### Research Question One

Was there more than one ordering of the five influencing factors used by the teachers in this study when they made their decision to change or not to change their content?

The purpose of this question was to determine if all teachers used the same policy when deciding whether or not to change the content which they taught to their students. Policy referred to the relative importance participants placed on each of the five influencing factors used in this study. If the results from this study indicated that there was only one policy used by the participants, then it would indicate that the teachers agreed on the relative importance of the influencing factors when making decisions to change or not to change content. If this study indicated that there was more than one policy, then it would indicate that teachers did not

agree on the relative importance of the five influencing factors. This disagreement would be expressed as individual or group policies.

Table 6  
Stages for Judgment Analysis Procedure

Stage	Number of Policies	Participant (Identified by Number)	R <sup>2</sup>	R <sup>2</sup> Drop
107	107	Single member policies	.6794	----
3	3	Policy Number 1 (67, 90, 56, 66, 83, 92, 40, 107, 96, 41, 46, 88, 89, 31, 63, 47, 98, 93, 54, 72, 4, 52, 99, 100, 13, 33, 21, 79, 35, 57, 76, 105, 6, 15, 91, 49, 103, 81, 34, 78, 14, 18, 73, 59, 19, 32, 95, 7, 71, 61, 80, 74, 8, 85, 16, 106, 10, 38, 101, 58, 82, 9, 29, 77, 12, 60, 69, 97, 20, 53, 22, 94)	.3914	----
		Policy Number 2 (43, 45, 28, 44, 84, 36, 3, 37, 17, 11, 68, 51, 24, 26, 55, 23, 50, 86, 87)		
		Policy Number 3 (65, 102, 25, 27, 48, 42, 30, 62, 64, 70, 75, 104)		
2	2	Policy Number 1 (67, 90, 56, 66, 83, 92, 40, 107, 96, 41, 46, 88, 89, 31, 63, 47, 98, 93, 54, 72, 4, 52, 99, 39, 100, 13, 33, 21, 79, 35, 57, 76, 105, 6, 15, 91, 49, 103, 81, 34, 78, 14,	.3146	.0769











































































































































































































