

Factors Affecting Student Teachers' Capacity for Flow Experience

by

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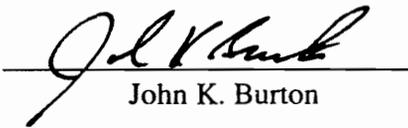
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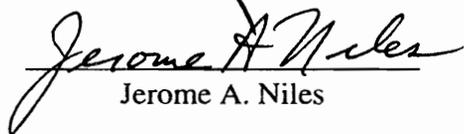
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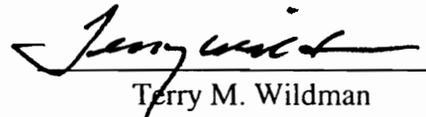
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(ABSTRACT)

The purpose of this study was to describe factors giving rise to flow in the context of the student teaching experience, utilizing Csikszentmihalyi's flow theory as a model. Over a two-week period, twenty participants each twice completed a rating scale revealing perceived levels of challenge and of skill in respect to eight teaching activities. Five of these participants volunteered to be interviewed a week later. Both quantitative and qualitative methods were employed for analyzing the data generated in the course of this study. Quantitative techniques were used to categorize participants according to the four quadrants of Csikszentmihalyi's flow model, as well as to distribute eight teaching tasks within these four quadrants. Qualitative methods were employed to guide interpretation of patterns observed in the quantitative data.

The information generated by the rating scale indicated that the perceived challenge levels of task demand were slightly higher than the perceived skill levels of participants. In terms of percentage of participants' responses grouped within each of Csikszentmihalyi's quadrants, more responses fell into the flow quadrant than into non-flow quadrants. Both of these results indicated promising potential for achieving flow on the part of the student teachers who participated in this study.

The information generated by the rating scale gives rise to a variety of possible interpretations, some of which seem to be corroborated by information gained through the interviews. It is especially noteworthy that according to the quantitative data, the high anxiety-producing activity of managing students was rated among activities highly associated with flow experience. An interpretation of these findings supported by the qualitative data is that even though the task of managing students was perceived to be very challenging, the process of interacting with students and sharing students' success led these student teachers to feel that they were adequately dealing with the demands of the task. Thus, the potential to experience flow under such an anxiety-producing activity was correspondingly increased.

The results of the content analysis supported Csikszentmihalyi's flow theory model in that five interrelated elements of that model were identified by the participants as affecting their capacity to experience flow. This study revealed that the single element most conducive to cultivation of flow was receiving focused feedback in the course of work toward a clearly defined goal. Furthermore, the strategies of flexibility and positive thinking emerged from this study as flow-conducive elements, since all three flow-quadrant participants reported that restructuring their attitudes and perceptions towards these ends enabled them to achieve flow, albeit the conditions under which they experienced flow varied.

Four distinctly different behavior patterns distinguished flow-quadrant from non-flow-quadrant student teachers: a) metacognitive awareness; b) willingness to seek help; c) cultivation of a sense of challenge; and d) development of effective stress-management strategies. Each of these four dimensions can be viewed as dichotomous, in that a

positively perceived experience in each dimension facilitated a flow experience, while a negatively perceived experience in this same dimension tended to thwart achievement of flow.

Finally, this inquiry revealed the individual character of the circumstances under which these student teachers experienced flow, pointed to the crucial role of the cooperating teacher role in facilitating flow, and provided insights into creating an optimal context for cultivating of flow during the student teaching experience.

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CHAPTER 1

INTRODUCTION

Beekeepers are an opinionated lot, each sure that his methods, and his methods alone, are the proper ones. When I first began keeping bees, the diversity of passionately held opinion bewildered me, but now that I have hives in locations scattered over a thousand-square-mile area I think I understand it....Frosts come earlier in some places than in others. Spring comes later. Rainfall is not the same. The soils, and the flowering plants they support, are unlike. Through the years, I have learned that as a result of all these variations I must keep the bees variously. Most people who keep bees have only a few hives, and have them all in one place. They find it difficult to understand why practices that have proved successful for them do not work for others. But I have learned that I must treat the bees in one yard quite differently from the way I do those even thirty miles away. The thing to do is, I have discovered, is to learn from the bees themselves.

--- The Sweet Bees, Sue Hubbell, 1988, p. 45

In *The Sweet Bees*, Hubbell (1988) described how being aware of distinctions among the bees themselves improves her practice as a beekeeper. Instead of aggregating bees all in one perfect way, the point here is to keep the bees as variously as their individual needs require. The reason for using Hubbell's story to introduce this paper is to suggest that the process of understanding the dynamics of student teaching is person-specific and circumstantial. Rather than aggregating student teachers in a search for the common teacher, the goal of this study is to understand multiple perspectives arising

from concrete situations, and to hear the particular voices of specific teachers. The discussions of their student teaching experience stimulated and allowed the participants to learn to reflect on the way in which they perceive the teaching experience. If student teaching is to be a reflective activity rather than a process of trial-and-error, student teachers must look back at their classroom efforts and analyze their successes and failures. It is only through this kind of reflection that teachers can learn from experience, and continue to grow and develop as thoughtful, knowledgeable practitioners. In addition, their perspective as novices in the classroom could provide teacher educators with valuable insights about teacher preparation.

Expert teachers, after years in the classroom, possess a huge storehouses of knowledge and experience that enable them to engage in the process of teaching and learning with some degree of automaticity and ease (Berliner, 1986). New teachers, on the other hand, are often assumed to be so overwhelmed by the task of surviving that they are unable to engage in serious reflection. There is ample evidence in the interview data that this is not necessarily so.

Statements of Problem

As the literature review will show, it has been widely recognized that teachers who have attained an expert level of proficiency seem to experience a sense of intrinsic motivation in their teaching. It seems to have been typically assumed that student teachers have not yet developed the capacity for enjoying their teaching. The majority of novice-expert studies tend to emphasize novices' incapacibilities (e.g. lack of routines, lack

of focus, distractibility, and so forth). In accord with this perception, teacher educators follow the lead of the current academic emphasis in the field by focusing on the instructional problems of teachers, rather than on helping them to draw out their potential for optimal mental states.

In this study the investigator suggested that despite the many challenges student teachers must face, it is possible for them to cope with the challenges they encounter within the context of their daily teaching sufficiently well to make their work intrinsically motivating. According to Csikszentmihalyi (1975; 1988), when challenges and skills are perceived as balanced, teachers may experience intrinsic rewards or what Csikszentmihalyi has referred to as flow. The flow experience is one of deep concentration on a limited set of stimuli that are accepted by the person as being relevant (Csikszentmihalyi, 1982, p. 22). Csikszentmihalyi (1988) has defined flow as any activity which has the following features:

1. The activity is structured so that the person can control the level of challenge being faced in order to match exactly his or her skills;
2. The activity has clear goals so that the subject can focus his or her attention and isolate the activity from other irrelevant stimuli;
3. The activity can provide unambiguous feedback to the person, enabling self-evaluation of performance; and
4. The activity has a broad range of challenges so that the person may obtain increasingly complex information about different aspects of the situation.

Significance of Study

No researchers was found which had investigated flow among beginning teachers. One specific form of activity which has received little attention within the context of the flow paradigm is teaching. Although there is a large body of research relating flow theories to leisure activities, it is interesting to note that there is a relative void of information concerning the occurrence of flow within the teaching and learning environment (Hill, 1993). This void is particularly apparent when considering the phenomenon of flow as experienced among student teachers.

Studies that relied on data from interviews and observations indicated that role behaviors are influenced greatly by the way one conceptualizes or thinks about those roles (Guyton & McIntyre, 1990). The literature on reflective practice has indicated that it is possible to reflect on those aspects of teaching that have the greatest potential for providing intrinsic rewards, and to experiment with altering those factors until a personally meaningful enjoyable combination is discovered (Wildman & Niles, 1987). Therefore, reflection on whether a person's skills are adequate to meet the environmental challenges might be an important component of growth toward an expert level of mastery of teaching skills. In addition, this descriptive and exploratory research focusing on such reflection can add to our understanding of rewards inherent in teaching and can provide information that suggests how the work of teaching might be made more enjoyable, meaningful, and productive.

There are two explanations as to why experiencing flow is beneficial for student teachers. Perhaps most importantly, cultivating flow experience may promote retention within the teaching profession. First, the flow phenomenon has been shown to have a significant inverse relationship to “wishing to be doing something else” in ten out of eleven main life activities (Csikszentmihalyi & Graef, 1980). Once individuals are in

flow-like experience, they can perform optimally, since they feel “a loss of awareness of time passing, a loss of self-consciousness, of self-doubt, of any of the ego-related concerns that they encounter in everyday situations” (Csikszentmihalyi, 1982, p. 22). Secondly, if the teacher exhibits this lack of enjoyment within the classroom environment, he or she "conveys the message to students that learning is only a means to other ends and lacks intrinsic value" (Csikszentmihalyi, 1982, p. 21). This lack of enjoyment on the part of teachers may have a direct impact upon motivation and achievement of their students. McKeachie (1982) argues for the necessity of understanding enjoyment within teaching, particular as it relates to learning. He states that "if we wish to increase the effectiveness [of teaching] we need to consider ways of increasing the intrinsic satisfactions found in teaching" (p. 8).

Purpose of Study

The purpose of this study is to describe the activities that give rise to flow within the context of a student-teaching classroom. Rating scales and interviews were used to reveal the complexity of student teachers' flow experiences and their approaches to adjusting to the role of future teachers . Specifically, this study was conducted to discover those aspects of teaching experience and activity that most contribute to the cultivation of flow experience for student teachers. Finally, the strategies which student teachers utilized in order to facilitate tendencies toward flow or to remediate non-flow tendencies were examined. Rather than viewing student teaching as a collection of problems, the analysis of conversations regarding student teachers' optimal experiences in the process of teaching and learning should offer insights into the role of that flow plays in motivating first year teachers to grow.

CHAPTER 2

REVIEW OF LITERATURE

Little has been done concerning the application of Csikszentmihalyi's flow model to teaching, particularly from the perspective of novice teachers. Although research on novice teachers has focused on issues of pedagogy, training, effectiveness, and negative experiences (e.g. stress and burnout), little research has focused upon the relationship between the novice teacher's level of proficiency and the level of challenge within specific teaching contexts (Hill, 1993). An imbalance between these two levels may account for some of the perceived needs and problems experienced by novice teachers.

First, the investigator reviewed the literature pertaining to the nature of problems encountered by novice teachers. Here, the outcomes of novice-expert comparative studies was synthesized to explore various causes and provide explanations for the problems of novice teachers as compared to those of expert ones. Secondly, the model of flow was presented along with a discussion of previous research studies to explore the potential contributions of the model to the process of learning to teach.

Problems Experienced By Novice Teachers

Veenam (1984) published a comprehensive meta-analysis of the research validating the perceived problems of beginning teachers. The eight problems perceived most often were: 1) classroom discipline, 2) motivating students, 3) dealing with individual differences, 4) assessing students' work, 5) relations with parents, 6) organization of class work, 7) insufficient and /or inadequate teaching materials and supplies, and 8) dealing with problems of individual students.

Veenam further indicated (1984) that these problems of beginning teachers may be explained in part by patterns in the thinking or decision processes of novice teachers which differ from those of experienced teachers. Studies have shown that during the process of student teaching, the novices become more authoritarian, more rigid, and less child-centered (Glassberg & Sprinthall, 1980).

As the following paragraphs will show, novice teachers experience more problems than do expert teachers, and they experience them more profoundly. Among numerous difficulties that novice-expert literature has pointed out, three particularly knotty problems are: 1) novices tend to solve problems guided by literal and superficial principles; 2) novices' undifferentiated rule-following pattern reflect lack of a coherent understanding of the overall task; and 3) novices are unable to separate relevant from irrelevant information with respect to the task at hand.

Superficial Problem-Solving Skills

One important outcome of novice-expert research emphasizes that the thought processes of teachers are similar to those employed by physicists or medical practitioners (Berliner, 1986). Chi, Feltovich, and Glaser (1981) gave physics problems to novices and experts and studied how they categorized the problems, represented the problems, and approached a solution to each problem. They concluded that experts' problem representation and subsequent approach to problem solution were guided by physics principles that the experts initially abstracted from the problem. In contrast, the novices based both their approach to the problem representation and their approach to the problem solution on an analysis of the physics problems' literal features (e.g. identical words or common feature of the problems). Interestingly, the authors noted that experts were slower than novices in the initial stages of problem solving, because they tend to

spend more time trying to look inside the question. Novices tend to jump in and try to solve problems before they understand the source of the problem.

The cognitive processes required for classifying problems and positing solutions are the same for the very experienced physicist and the very expert teacher. Ropo (1987) examined the differences between novice and expert teachers in regard to their concepts of interaction in the classroom. In comparison with novices, experts focused more on concrete examples of interactions and on the importance of analyzing students' responses to the work. In order to plan future activities, novices appeared to regard their students' tests and homework in terms of comparatively more "surface" information such as whether or not homework was being completed and turned in. Carter, Cushing, Sabers, Stein, and Berliner (1988) conducted a study of observation patterns among teachers at various levels of expertise in order to explore differences between novices and experts in regard to visual information processing. Their experiment suggested that the narratives in the novice teachers' journals described mostly the physical appearance of students. Instead, expert teachers appeared to have a richer descriptions and "sense of typicality" about classroom events and student behavior. In other words, they seem to merge information about individual students into a group picture. Conversely, novices have not yet developed the fine-tuned ability needed for feature discrimination that is seen in experts. These results coincide with the finding of Ropo (1987) that expert subjects appeared to "look inside" student work to pull out information.

Working from an information-processing paradigm, Leinhardt (1983) found that expert teachers were better able to weave segments and routines together and had a richer array of lesson scripts than did novice teachers. Expert teachers could call upon the scripts in a variety of contexts, thus enabling them to be more flexible. Novice teachers,

in contrast, planned activities for teaching but gave less thought than experts to how these events would be carried out under various classroom conditions.

Undifferentiated Rule-Following Patterns

There is substantial overlap between the characteristics of experts vs. novices in cognitive psychology and experts vs. novices in pedagogy. The rule-following pattern of novice teacher behavior can be inferred by analogy from the cognitive psychology literature. Johnson (1988) examined differences in the processes of selecting house officers employed by expert- and novice-physicians. Their protocols revealed several qualitative and quantitative differences. Most striking were the differences in the time required to perform the rating task. The two experts averaged about 7.8 minutes per applicant, while the novices took almost twice as long, about 15 minutes per applicant. These differences were due to the smaller amount of information examined by the experts. While the novices examined over 43% of all the statements that were available in the folder, experts examined only about 22%. The experts also examined different information than did the novices. Transcripts, for instance, were hardly examined by the experts. The novices examined the information present in the folders in the order in which it was presented, reading one item at a time, moving sequentially down the page. These differences in search strategies appear to reflect experts' belief that certain items provided by the applicant are relatively unimportant. They appear to examine the quality of applicants in a top-down fashion. Thus, they are using their knowledge of medical education to structure their evaluation processes.

On the contrary, novices learn through trial and error, often guided by imitation of those more proficient (Bullough, 1989). An expert nurse described her novice supervisees' behavior:

If I said, you have to do these eight things, they would do exactly what I told them to do, no matter what else was going on...They did those things, and they didn't care if their other kid was screaming its head off...They couldn't choose which one was the most important, and leave the things that weren't as important until later on...(Benner, 1984, p.23).

Novices are generally not taught that in certain situations rules can be violated. They lack any coherent sense of the overall task. Novices judge their performance mainly by how well they follow learned rules. Experts generally know what to do not through reliance on rules but rather on the basis of mature and practiced experience-based understanding.

Unselective Distraction Elimination.

Focusing on human information processes and problem solving, Larkin, McDermott, Simon, and Simon (1980) found that expert physicists rapidly evoke the particular items relevant to the problem at hand, retrieving such information within a fraction of a second. Compared to experts, novices have equal or better memory for information that is not relevant to the task at hand. This result was explained by Patel, Frederikson, and Groen (1984) as evidence that experts were superior to novices in separating relevant from irrelevant information. For example, if experts wish to get from point A to point B very quickly, they choose their routes with attention to traffic and distance, ignoring irrelevant factors (e.g.. scenes).

The findings of Larkin et al. present a picture which is consistent with the portrait of novice teachers reported by Fogarty, Wang, and Creek (1982). Perhaps the difficulty novice teachers typically encounter in their problem-solving efforts is attributable to the fact, noted by Fogarty et al. (1982), that novice teachers were less able to attend to spontaneous student responses and to cues from the class as a whole than were expert

teachers. Instead they were very sensitive to student behaviors that could disrupt their planned presentation. Such difficulties are not surprising in light of research findings which reveal that teaching is an extraordinarily complex task (Bullough, 1989; 1992).

Hamilton's finding in neurophysiology yielded a similar suggestion that people vary in the number of external cues they need to be able to isolate or rotate a figure from a background (see Csikszentmihalyi, 1990, p.86). Hamilton claimed that people who can enjoy themselves in a variety of situations have the ability to screen out stimulation and to focus on what they decide is relevant for the moment.

Livington and Borko (1989a) examined differences between expert and novice teachers in terms of planning and post-lesson reflection. The lesson plans of novices were full of detailed mental plans for their presentations. However, novice teachers were not well prepared to respond when unexpected events obstructed their scripted actions. They tended to become so overwhelmed with distractions that they had difficulty getting back on track and eventually lost control of the lesson. In contrast, expert teachers know which distractions from teaching they should attend to and which should be ignored (Livington & Borko, 1989a). If one of their class activities fail, they always have another "back up" plan ready.

Reasons For Problems Experienced By Novice Teachers

All in all, the research reviewed suggests that expert teachers seem to have some sort of mental "magic box" of teaching strategies that is different from that of novices. Unable to concentrate, attending indiscriminately to everything, novice teachers may end up unable either to function effectively or to enjoy themselves. But what causes these problems in the first place? Overall, there are three ways of explaining them; 1) novices have not yet developed accessible schemata for instructional strategies; 2) novices have

few automatic routines to store and access information and must consciously think through every single decision; and 3) novices lack metacognitive skills which would allow them to link declarative and procedural knowledge.

Less Accessible Schema

Part of the reason for novice teachers' difficulties may have to do with the way in which the information is stored in memory. Information stored in memory appears to be organized into a network of related facts and experiences, which cognitive psychologists term schemata (Anderson, 1984; Berliner, 1986). Schemata allow us to store and access huge amounts of information with enormous speed. The teaching schema frames how problems are understood and how they are addressed by establishing what solutions or courses of actions are seen as possible and desirable. Schon (Wildman & Niles, 1987) further develops this point when he states that:

When we set the problem we select what we will treat as the 'things' of the situation, we set the boundaries of our attention to it, and we impose upon it a coherence which allows us to say what is wrong and in what directions the situation needs to be changed. Problem setting is a process in which, interactively, we name the things to which we will attend and frame the context in which we will attend to them.

From this view point, the main difference between novice and expert teachers is the way they constructed the problems. Experts' problem-solving can be described as a process of combining information from existing schemata to fit the particulars of a given situation. Novices, on the other hand, often have to develop, or at least, modify and elaborate their schemata during the process.

Similarly, studies comparing novice and expert teachers' interpretations of classroom experiences indicate that novice teachers do not have as many appropriate schemata for instructional strategies to draw upon in any given classroom situation as do experts (Cater et al., 1988). Livingston and Borko (1989b) theorized that this difference was due to experts' richly connected schemata which they draw upon when solving problems, whereas those of novices are less elaborate, less connected, and not as easily accessed.

Few Automatic Routines

The other reason for novices' difficulty with efficient enactments concerns the notion of automaticity. Novices do not generate the full range of possibilities for alternatives. They have few automatic routines for storing and accessing huge amount of information and thus must consciously think through every single decision. This limitation certainly inhibits the mental flexibility required for teaching. In contrast, expert teachers have stored automatic scripts allowing them to handle common routines almost without conscious thought, thus requiring little if any mental effort (Berliner, 1986; Livingston & Borko, 1989a). For example, an expert teacher who can check on a student by walking over to the student's desk while still lecturing is employing an automatic script. Considerable time and practice is needed to develop a high level of automaticity. Yet once an individual achieves intuitive understanding of how the routines are put together, they can be maintained with little thought.

Few Metacognitive Skills

Anderson (1984) has proposed that a learner's knowledge can be categorized into two types, declarative (e.g. knowing about something) and procedural (knowing how to

do something). Clark and Peterson (1986) claimed that novice teachers might know about specific classroom-management strategies (declarative knowledge about general pedagogical knowledge) but not understand how to use them in a classroom (procedural knowledge). This statement explains the reason novice teachers need detailed lesson plans or lecture notes to have all the teaching knowledge readily accessible, since novices have not yet developed their internal self-regulation skills (Clark & Peterson, 1986). Zeichner and Gore (1990) supported Anderson's finding and surmised that perhaps novice teachers were not engaging as frequently as do expert teachers in cognitive processes such as differentiation and selection. They claimed that novices' simple, undifferentiated metacognitive strategies lack the conceptual structures to discriminate among items of information in terms of their immediate and long-term significance. The type of metacognitive skill employed by experts is an important tool for linking declarative and procedural knowledge.

In summary, the novice/expert comparative studies explain that learning to teach requires building schemata that are well organized and capable of directing one's actions as a teachers. Novice teachers have few automatic routines and must consciously think through every decision inhibits the mental flexibility required for teaching. They have not yet developed internal metacognitive strategies which enable them to discriminate relevant from irrelevant stimuli (Zeichner & Gore, 1990). As a result, these novice teachers may perceive classroom situations in a simplistic, often naive way.

Remediation Of Problems Experienced By Novice Teachers

It seems that novice teachers fail to access and use personal knowledge in the real classroom because of the complexity of the environment and their lack of adequate schemata. Becoming a teacher involves developing a more sophisticated schematic

system to provide for emergence of personal knowledge (Bullough, 1989). It appears that novice teachers will need assistance to develop the personal concepts they hold into the schemata needed for handling the realities of classroom life. But the question is: what framework can be implemented to sophisticate these novices' personal concepts and help them handle the complexity of teaching environment?

Flow Theory

According to Csikszentmihalyi (1975; 1988), when challenges and skills are perceived as balanced, teachers may experience intrinsic rewards or what Csikszentmihalyi has referred to as flow. The flow experience is “one of deep concentration on a limited set of stimuli that are perceived by the person as being relevant” (Csikszentmihalyi, 1982, p. 22). These stimuli might be a set of musical notes for a composer, the configuration of a chess board for a chessmaster, or a student's fluctuating level of attentiveness for a teacher. On the other hand, if an individual's skills and task challenge level are out of balance with the skill level either greater or less than the demands posed by the task, then he or she will accordingly experience either boredom or anxiety (Csikszentmihalyi, 1975).

Initially, Csikszentmihalyi (1975) entitled flow the "autotelic" state. This terminology was derived from the Greek roots auto (self) and telos (goal or purpose), which referring to the intrinsic motivation at the core of the autotelic experience. However, throughout the many interviews which formed the basis of his research, the word "flow" continually recurred in his respondents' self-reports. Therefore, Csikszentmihalyi altered his terminology, renaming the autotelic experience as "flow". As he states:

There are two reasons for our changing names in midcourse. The first is relatively trivial: flow is less awkward than the former label. The second is more substantive: in calling an experience 'autotelic,' we implicitly assume that it has no external goals or external rewards; such an assumption is not necessary for flow...one may experience flow in any activity, even in some activities that seem least designed to give enjoyment (p. 36).

Characteristics of Flow

To maintain a state of flow, Csikszentmihalyi's model implies that an individual needs to keep modifying the level of task challenge and further developing his or her skill level in order to minimize the discrepancy between challenge and skill levels. Behavior must become increasingly more complex because more responses are required to meet the demands of the situation in order to maintain the appropriate balance between challenge and skill. No activity can sustain flow for long unless the challenges and skills become increasingly more complex (Csikszentmihalyi, 1993). This is why flow experience is a dynamic of growth. Flow leads to complexity because, to keep enjoying an activity, the person needs both to find ever new challenges in order to avoid boredom, and to perfect new skills in order to avoid anxiety. Such optimal conditions afford the kind of well-paced progressive match between task complexity and individual skills that is the hallmark of the flow experience.

Related Research Utilizing Csikszentmihalyi's Model Of Flow

A number of studies have demonstrated the range of activities to which the model of flow can be usefully applied in education. Langston (1989) offered an explanation of

rhetorical engagement based on her comparisons between novice- and expert-writers' degree of intrinsic motivation for writing. Specifically, she explored how a model of engagement devised from the work of Csikszentmihalyi fits with the activities of expert- and novice-writers in their approach to writing tasks. Five experts and five novices were given two tasks, one relatively open-ended and one highly constrained. The results of the study supported Csikszentmihalyi's theory in that they indicated that expert writers tended to integrate many personal goals for engagement by adjusting the task demands to match their abilities. On the other hand, novice writers did not integrate personal goals into their vision of either task.

Langston's (1989) findings present a picture consistent with the portrait of novice/expert studies by Johnson (1988), Carter et al (1987), Clark and Peterson (1986), and Benner (1984). It seems that the low number of personal goals articulated by novice writers appeared to result from beliefs that their performance depended on how well they followed the rules. Such beliefs may interfere with novices' integration of personal goals as they engage in writing tasks.

Allison and Duncan (1987) examined activities of women in two occupational strata: university professors and blue collar workers. They found that flow as well as non-flow are often associated with the demands of teaching for many university faculty women. In fact, among those faculty members interviewed, most of them experienced their greatest degree of flow within the context of work. Those individuals enjoyed teaching and were wrapped up in the enjoyable complexities of determining the best

methods for teaching a particular subject matter to a particular group of students. Even though teaching activities are not designed to create flow, it seems that teachers can still find plenty of opportunities for flow experience as they engage in challenges present in their daily work.

On the other hand, the blue-collar women in Allison and Duncan's study found their work experience boring, repetitive, and frustrating. Unlike their professional counterparts, the blue-collar women experienced flow predominantly at home and in leisure. This is not to say that the blue-collar women never experienced flow at work, but they did express their greatest satisfaction with the sense of control they felt in their homes.

Wernick (1988) criticized Csikszentmihalyi's theory of flow as a framework for the qualitative investigation of people's perceptions of what constitutes their work satisfaction experiences. Although many pieces of her data substantiated Csikszentmihalyi's theory, she found that people used other constructs besides those encompassed by Csikszentmihalyi's typology--worry, boredom, anxiety, and flow--to describe their subjective experience at work. The data further revealed that although people often used the constructs found in Csikszentmihalyi's typology, they often attached different meanings to them. Based on her analyses, the major finding of the investigation was that Csikszentmihalyi's typology was "not sufficient for the purpose of describing the diversity and complexity intrinsic to subjective experience of work, even though much of the data supported the propositions (p. v)."

The criticism raised by Wernick may be contributable to an inadequate understanding of flow theory as a framework of describing work experience. In fact, Csikszentmihalyi (1975) recognized that individual difference factors had the potential to influence the participants' perceptions of their flow experience. Csikszentmihalyi assumed that there was "an autotelic personality" (p. 22), because he found that individuals varied in the degree to which they responded to flow in the same activity. It is possible that the range of descriptive differences of Wernick's participants in terms of flow typology could be explained by individual personality differences as well as by gender, skill level, or emotional reactions.

Nakamura (1988) reported a comparison between two equally talented groups of teenagers. Both groups were exceptionally able in mathematics. The students in the highly committed group were developing their talent in mathematics while the students in the less committed group were not. She showed that the key difference between the two groups was that the committed math students were twice as often in a state of flow when studying, compared to the students who were not using their talent. The first group worked very hard, but they were not anxious and pressured while doing so. The latter, in contrast, were in the state of anxiety much more often when studying.

If the enjoyment of flow experience is central to the work of the most committed teenagers, it would be a highly desirable goal to know how often this enjoyment is perceived by their teachers. To provide a place where the enjoyment of productive work can be learned, teachers represent for many students the first encounter with an adult from a particular field of talent. It seems urgent to place an equal emphasis on the importance of enhancing the quality of educational experience for teachers, who, by experiencing flow themselves, can model it for their students.

Lefevre (1988) who studied a total of 107 workers at five large companies in the Chicago area, indicated that when challenges and skills are both high, the respondents reported the highest quality experience, as did Nakamura's high-achieving teenagers. Lefevre further concluded that the more time workers spent during the week in the flow state, the higher the levels of overall optimal experience they reported; that is, the more happy, strong, concentrated, and satisfied they felt.

Perhaps the most important finding that Allison and Duncan (1987), Nakamura (1988), and Lefevre (1988) shared is that the occasions of flow were more frequent on the job than anywhere else, including leisure settings. Some workers in industrial and clerical-work settings find their work boring, frustrating, or anxiety-provoking. But others, who are in every other respect similar to the first group, look on the same jobs as stimulating and enjoyable. The two groups appear to differ only in that persons in the latter group exhibit a tendency to restructure their tasks and create personal challenges which make their work intrinsically rewarding (Lefevre, 1988).

Why does the same activity create anxiety or boredom for some and enjoyment for others? According to Csikszentmihalyi (1975), the objective challenges of the task do not account for the differences, nor does the objectively determined levels of a person's skills. Rather, it is the ability of people in flow to recognize challenges at a level commensurate with their skills, whereas others only see tiresome obstacles. The group of people in flow also seek to restructure situations in order to avoid boredom and worry.

Conclusion

This review has summarized the major contributions to the literature in the fields of novice/expert cognitive psychology as they relate to the problems experienced by novice teachers. It was found that typically novice teachers failed to transfer their

theoretical knowledge into practice because of the complexity of the classroom environment and their lack of adequate schemata for doing so.

Following the review of research focusing on these problems and their causes, research investigating the implications of Csikszentmihalyi's flow model were reviewed. Although the findings of research based on Csikszentmihalyi's model were not specifically related to flow in teaching, the findings did yield insights applicable to study of the phenomenon of flow within novice teaching experience. It appears that the balance between a teacher's perception of challenge and his or her skill level is essential for the development of intrinsic motivation within the instructional environment.

CHAPTER 3

METHODOLOGY

Restatement of Purpose

To examine critically the flow experience in student teaching--as the first phase of novice teaching--and identify strategies student teachers use during their teaching, it is necessary to explore the teachers' perceived levels of challenge as they interact with the new environment and develop related skills. To that end, this study was conducted. The purpose of this chapter is to describe the procedures for data collection and an explanation of the procedures for data analysis. The methodological approach involves both qualitative and quantitative methods of inquiry. A rating scale and a one-hour interview were used to generate the data of the study. Basically, this chapter includes information on: (a) research questions, (b) selection of samples, (c) sample characteristics, (d) instruments, (e) purpose of triangulation, (f) collection of data, (g) methods used to analyze the data, and (h) statistical analysis of reliability. To conclude this section, limitations of the present investigation are addressed.

Research Questions

By utilizing Csikszentmihalyi's flow model, the focus of this study is to answer the following research questions concerning how student teachers' flow experiences relate to their overall experience of teaching:

1. What are student teachers' perceived skills and perceived challenges in respect to various teaching activities?
2. What are the factors which contribute to getting into flow in student teaching?
3. What are the quantitative and qualitative similarities and differences among flow-quadrant student teachers? and
4. What are the qualitative differences between flow-quadrant student teachers and non-flow-quadrant student teachers?

Selection of Samples

Since the focus of this study is to qualitatively examine the student teachers' thinking about flow experiences, rather than to quantitatively generalize the result to a large population, the most useful sampling technique would be purposeful sampling instead of random sampling. The rationale behind the sampling method is that since the study was the first investigation of this type to explore in depth the optimal experience of student teachers, it was considered prudent to limit examination of the experience to that which is likely to have some similarity in qualities.

The participants for this study were students who were enrolled in a student teaching class for K-8 level within a Masters program of a University in Southwest Virginia. The majority of them have earned their Bachelors degree from non-teaching related areas and entered this graduate-level program in the College of Education in order to obtain teaching certifications for K-8 level. Their ages range from twenty to thirty-

nine and their backgrounds had been diverse. Some had received a degree from Psychology, Sociology, or Family and Child Development; others had the degree from content areas such as English, Science, or Mathematics.

The participants of this study were selected because they represented a group of student teachers who would be more likely to be familiar with the concepts to be discussed and from which can be learned about the cultivation of optimal experience. All of them belonged to a “co-worker group” in the same program, which means they went through the program together, took classes together and they will likely graduate together. Before entering this final class for the program, they have had most of their methods courses (e.g., mathematics, science, social studies, foundations in reading, and educational psychology) completed by the first year they have entered the program. This shared knowledge base and common experience allows them to share problems with one another and thereby to develop a community of learners.

It should be noted that this study was conducted during these student teachers’ second teaching placement. In the “limitation” section of this study, the implications of this fact will be considered.

Instruments

Rating Scale

The level of challenges student teachers encounter in eight tasks and the level of their skills to meet these challenges were measured by a 10-point Likert Scale. These eight

tasks were: a) routine duties, b) managing students, 3) working with faculty, 4) working with principal, 5) developing curriculum, 6) organizing materials, 7) assessing students, and 8) identifying students with special needs. This method of task-oriented rating scale has been used by Rogers et al. (1993) to investigate the perceptions of challenges and skills among day-care teachers (Appendix A).

Interview Protocol

Following a review of the theories of Csikszentmihalyi (1975, 1982, 1988, 1993) on the flow experience, and of Robert Bullough (1989, 1992) on first-year teaching, an interview protocol (Appendix B) was developed to capture the essence of each of these theories. The development of the interview protocol involved two goals: 1) determining the most appropriate ways of asking student teachers about their level of intrinsic motivation without the use of the word “flow” by the investigator; and 2) determining the most relevant questions to ask about flow in order to increase understanding of this experience.

The interview questions were an open-ended, semi-structured format which allowed maximum input, according to the willingness of individuals to participate. Participating student teachers were first asked to describe their views of teaching and why the profession had attracted them in the first place. Next, questions about the participants' sense of the controllability of factors leading to flow experience, flow/non-flow antecedents, and strategies to facilitate flow were asked. Finally, participants were encouraged to summarize the insights they have gained from the overall field experience.

Collection of Data

The procedures for data collection involved both qualitative and quantitative methods. Both a rating scale and an interview were used to investigate how flow was experienced by the participants. Twenty participants individually completed a rating scale to reveal their perceived challenges as well as perceived skills in respect to eight teaching activities. These participants then performed a re-test within one week of the initial test. Finally, five of these student teachers volunteered to participate in face-to-face interviews with the investigator. The results from the scale as well as selected quotations from interviews were analyzed to identify factors that give rise to flow experiences as well as factors that hinder them.

The inclusion of qualitative and quantitative approaches to data collection was a strength of this study, contributing to the credibility of the findings through triangulation of the data. The rationale for this strategy is that the flaws of one method are often the strengths of another. By combining the rating scale and interview methods, the investigator can achieve the best of each while overcome their unique deficiencies.

Analysis of Data

A combination of qualitative and quantitative analyses were employed for analyzing the data generated in this study. The quantitative analysis was used to categorize participants into one of four quadrants in Csikszentmihalyi's flow model. It was also used to distribute eight teaching tasks in four quadrants. The qualitative analyses was used to focus upon finding evidence to provide explanations behind quantitative data.

Operational Definition of Flow

These quadrants are operationally defined in terms of balance between challenges and skill level as defined by flow theory (Lefevre, 1988). According to the revised flow model (Csikszentmihalyi & Csikszentmihalyi, 1988), the flow experience begins only when challenges and skills rise above a certain level and are in balance. In operationalizing this concept, the personal mean for challenges and skills is used as the starting point above which experience should become positive (Figure 1).

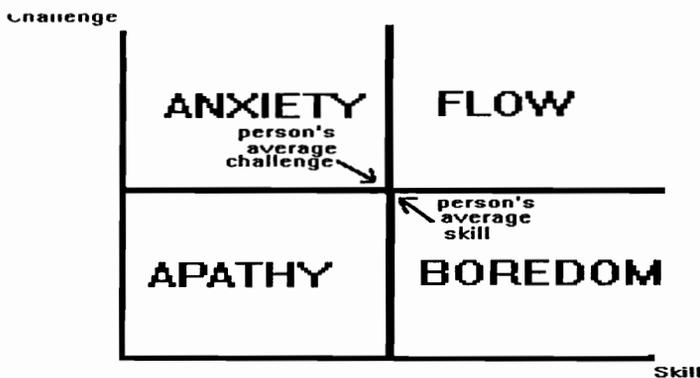


Figure 1: The flow model adopted from Massimini and Carli (1986). Only above that starting point of the personal average of challenges and skills does flow begin.

- In the flow quadrant, both challenge level and skill level exceed the individual participant's average.
- In the anxiety quadrant, the challenge level exceeds the individual participant's average, but the skills demonstrated are below his or her average.
- In the boredom quadrant, challenges are less than the individual participant's average, whereas the skills demonstrated are above his or her average.
- In the apathy quadrant, both challenge level and skill level fall below the individual participant's average (Lefevre, 1988, p. 309).

Quantitative Analysis

The first task of the data analysis of the study focused on the quantitative assessment of the perceived challenges and skills of 20 participants as they approached the end of their student teaching. The assessment was centered on two primary questions: a) percentage of participant responses within each of Csikszentmihalyi's; and b) distribution of tasks according to Csikszentmihalyi's quadrants. Of special interest here was what percentage of the responses was in flow and what tasks were most associated with flow.

The cumulatively rating scale data was used to determine in which of four challenge-skill quadrants five participants could be categorized. After the completion of the data collection sessions for all the participants and coding of all the interview transcripts, it was necessary to cluster participants whose predominant modes of functioning fell in the same quadrant, based upon the self-report data. The overall pattern of flow experience among student teachers was determined by their mean ratings on skills and the mean ratings of challenges for all rating scales (Rogers et al., 1993). The results revealed which of the quadrants predominated for the participants, overall. By

categorizing participants according to the four quadrants in Csikszentmihalyi's model, it allowed for inquiry into qualitative similarities and differences reflected in the coded interview data across the four different quadrants.

Qualitative Analysis

The second stage of data analysis was to classify factors that are associated with facilitating flow. To obtain a better understand of the aspects of flow that were the most salient to this group of student teachers, the number of themes / factors which contributed to the elements of flow experiences were calculated. These factors were then categorized into each of the five general elements of flow. Next, to get a richer sense of how the flow experiences was perceived from person to person, the investigator took a closer look at the similarities and differences among the three participants who were categorized in flow condition. Finally, the comparisons were made between student teachers in flow and those who were not .

Statistical Analysis of Reliability

A correlation analysis consisting of Pearson Product Moment correlation for estimation of stability reliability across testing days and Cronbach's alpha for estimation of internal consistency within testing sessions was employed. Each of the eight rating items was analyzed for test-retest reliability (stability reliability) across days and for reliability of scores within a test (internal consistency). In order to reduce the unreliability of the rating scale, the re-test was performed. This test-retest strategy was adopted as a compensatory tactic to offset the unreliability of the rating scale as an instrument of evaluation.

Results of the stability reliability correlation indicated that the perception of challenge levels of participants toward the eight rated activities were the most stable measurement across days ($r = .68$). Internal consistency coefficients were determined for reliability of scores of teachers' perceived challenge levels and skill levels for the eight activities within a test. The results revealed that for perceived challenge levels, internal consistency coefficients of Cronbach's alpha range from .65 to .67. For perceived skill levels, Cronbach's alpha ranged from .76 to .78, respectively. It appeared that the internal consistency coefficients in the re-test session were much higher than the stability coefficients, e.g. the consistency among the eight activities within the re-test session was greater than across testing days. Therefore, the scores from the re-test session were used in the remaining statistical analyses.

It also appeared that the fairly high reliability coefficient for the perceived skill level within the re-test ($r = .78$) indicated no substantial difference in these student teachers' perceptions of their skills for the eight activities. However, the relatively low stability reliability correlation for consistency of perceived challenge levels on both test and re-test session suggested that their perceptions about challenges varied from activity to activity. More investigation in terms of the variability of the challenge levels across eight activities may shed some lights on the low reliability coefficients within test session. The result of internal consistency reliability for the present study was compared to experiences of child-care teachers who were surveyed in Rogers et al's study (1993). Rogers and her colleagues reported high correlation coefficients ($r = .91$) for the consistency of perceived challenge levels and skill levels for 10 different activities among 189 child-care teachers. It is important to note that the relatively low reliability within a test session for this study could be due in part to the smaller sample ($N = 20$) as well as the fewer activities to be rated.

Limitations of the Study

It is important to emphasize here that the results of this study do not represent an entire population, but are representative only of that particular sample under study. One of the criticisms of the existing literature on beginning teachers is that the reported findings are the result of single episode data, thus ignoring the possibility of change and complexity over the duration of the student teaching experience (Cutler, 1992). The single-episode data could not capture the shifts and changes in the participants' experience across the duration of the year. This study is susceptible to the same criticism, since although a test-retest procedure was employed, data obtained from the pre-test was utilized only to improve the reliability evaluation of instrument.

The second limitation concerns the composition of the sample. All 20 student teachers were nearly at the end of the second of two required student teaching placement. As a consequence, the present sample showed rather high mean skill scores and cannot be regarded as representative of the entire course of their student teaching. Whether the conclusions from this study are relevant to earlier phase of the student teaching experience has yet to be shown. Therefore, the results of this study should be interpreted with caution.

Finally, it should be noted that throughout the document, excerpts from the interviews have been reported verbatim, including instances in which the interviewees' grammar and syntax deviated from standard English usage.

Chapter 4

RESULTS AND DISCUSSION

This investigation was designed to examine the flow experience of student teachers. Both quantitative and qualitative analyses were conducted. The presentation and discussion of the results of this investigation were organized according to the following questions:

1. What are the participating student teachers' perceived skills and perceived challenges in respect to various teaching activities?
2. What factors are conducive to flow in student teaching?
3. What are the quantitative and qualitative similarities as well as differences among student teachers categorized in the flow quadrant? and
4. What are the qualitative differences between flow-quadrant student teachers and non-flow-quadrant student teachers?

Following a discussion of findings that help to answer these four guiding questions, this chapter will conclude with a summary of those findings.

Quantitative Results of Research Question # 1

a) Percentage of Participant Responses Within Each of Csikszentmihalyi's Quadrants

Comparison of the means on perceived skills and challenges for the student teachers overall is displayed in Figure 2. In the present sample, the data showed that the perceived level of challenge for the task demands was slightly higher than the perceived skill levels of participants. The rating of skills was an average of 6.01 on a 10-point scale, with individual means ranging from 3.75 to 8.00. The sample mean for the level of challenges was 6.17, with individual means ranging from 3.75 to 7.88. These data indicate that the levels of challenge and the levels of skill were both relatively high and were roughly matched.

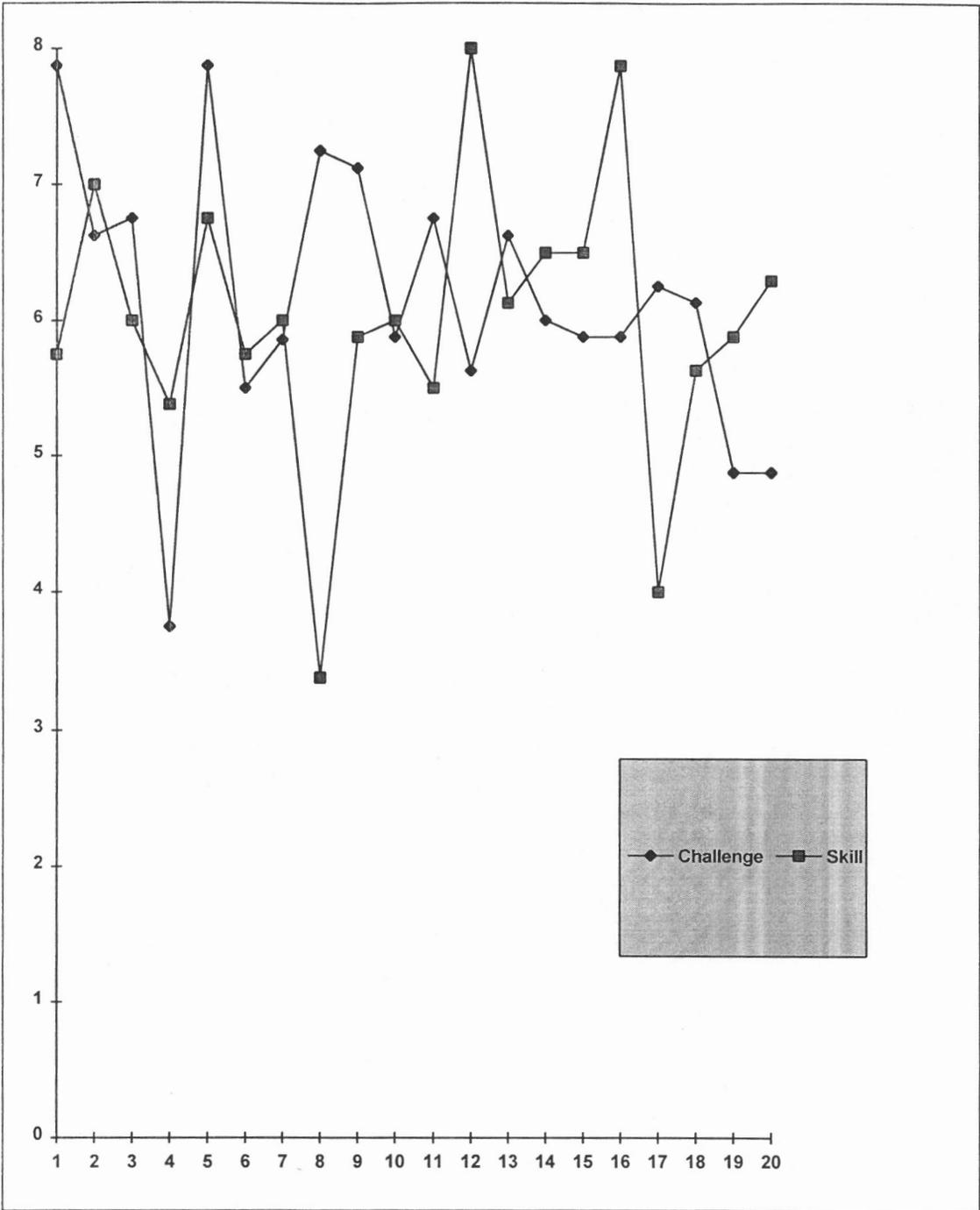


Figure 2: Comparison of the means on perceived skills and challenges for the participants overall

The first step in the quantitative analysis was to tabulate the reported responses into each of the four quadrants defined by the ratio of challenge to skill. According to flow theory of Csikszentmihalyi (1988), flow experience occurs only when both the level of challenge and the level of skill exceed the personal mean average of the individual. The percentage of responses of student teachers which fell into each of the quadrants is shown in Figure 3.

Of the total 158 responses, 34.18 % of the responses fell in the flow quadrant; 29.75 % of the responses fell in the boredom quadrant; 21.89 % of the responses fell in the anxiety quadrant; and only 15.19 % of the responses fell into the apathy quadrant. The results thus showed that more responses fell in the category of flow than in the other categories of relationship between skill level and challenge level. These data suggested a high potential for achieving flow among the participants

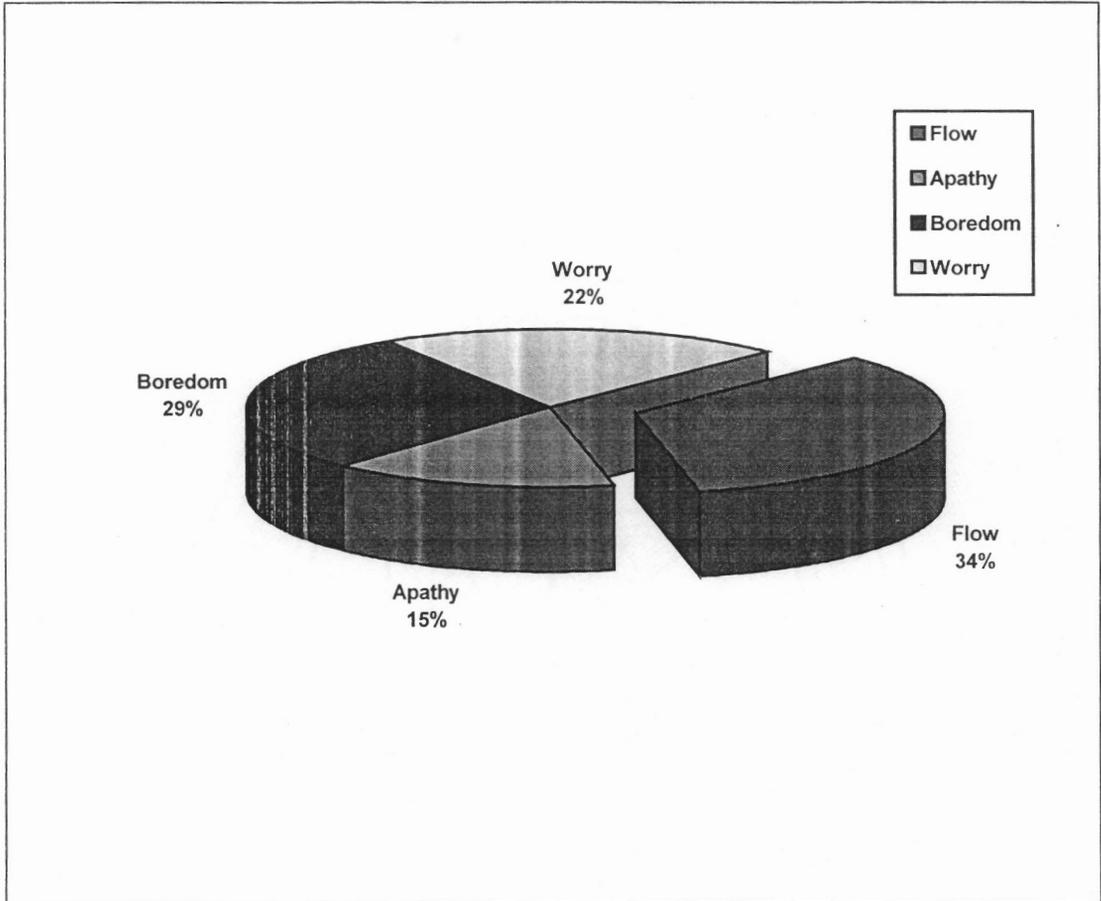


Figure 3: Percentage of participant responses within each of Csikszentmihalyi's quadrants

b) Distributions of Tasks According to Csikszentmihalyi's Four Quadrants

The distributions of tasks according to Csikszentmihalyi's four quadrants is displayed in Figure 4. The overall implication of this Figure is that flow experiences did occur in all types of teaching contexts. The figure further suggested that every activity can be boring, anxious, and apathy-producing, as well as being a context for optimal experience. The activity most associated with flow was managing students, followed by situations in involving organization of teaching materials and assessment of students. The activity most associated with anxiety was identifying special needs of students, whereas the activity most associated with boredom was "routine duties." It is especially worthy of note that the highly anxiety-producing activities such as developing curriculum and assessing students were also among the activities which were frequently associated with flow experience.

The second part of the analyses for research question #1 suggests some possible interpretations of the results of the rating scale data in light of the information gained through the interviews.

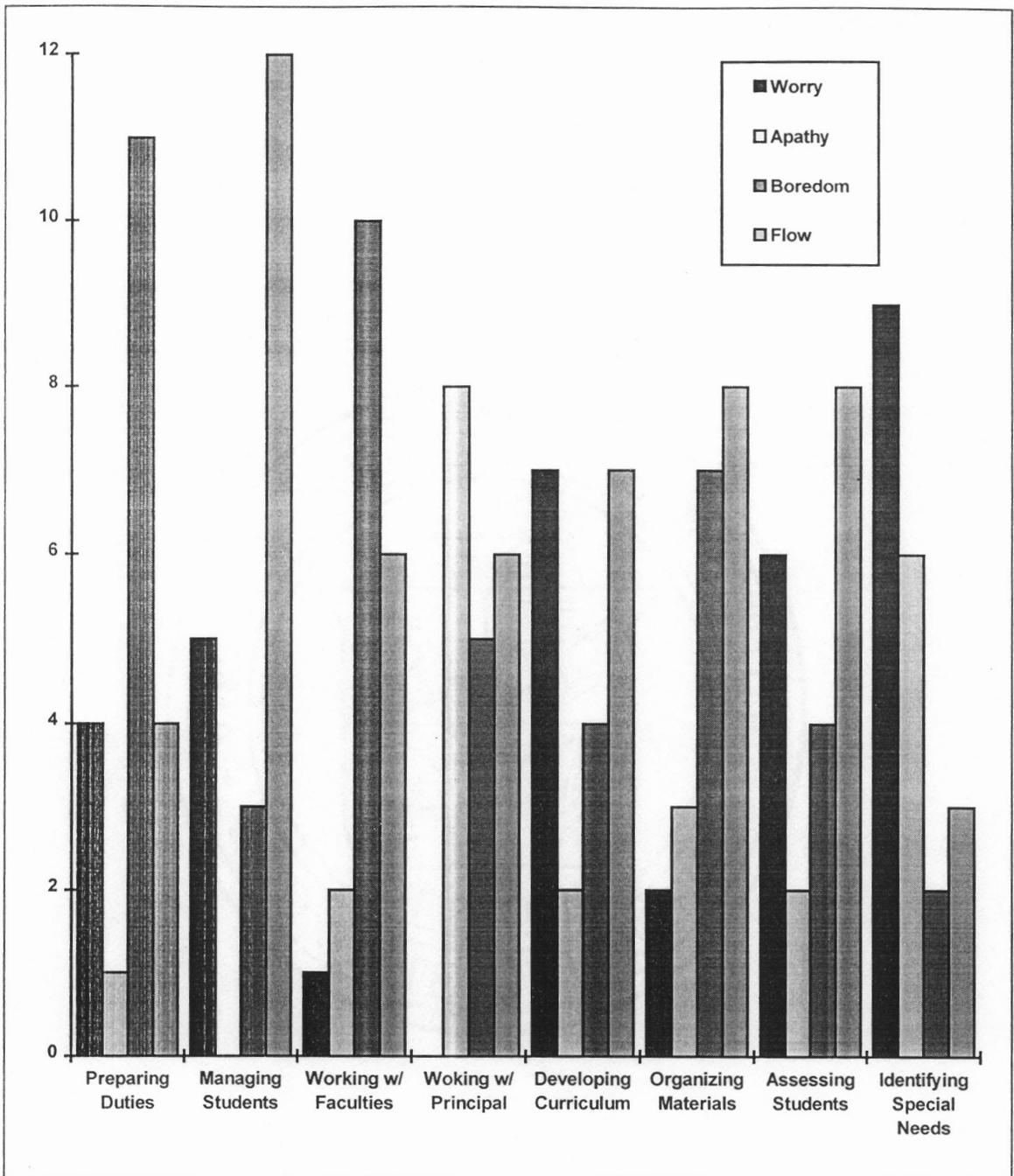


Figure 4: Distribution of tasks according to Csikszentmihalyi's four quadrants

Qualitative Interpretation of Quantitative data

The Task Most Highly Associated with Anxiety:

Meeting Individual Needs of Students

The activity most frequently associated with anxiety was meeting special needs of students (Figure 5).

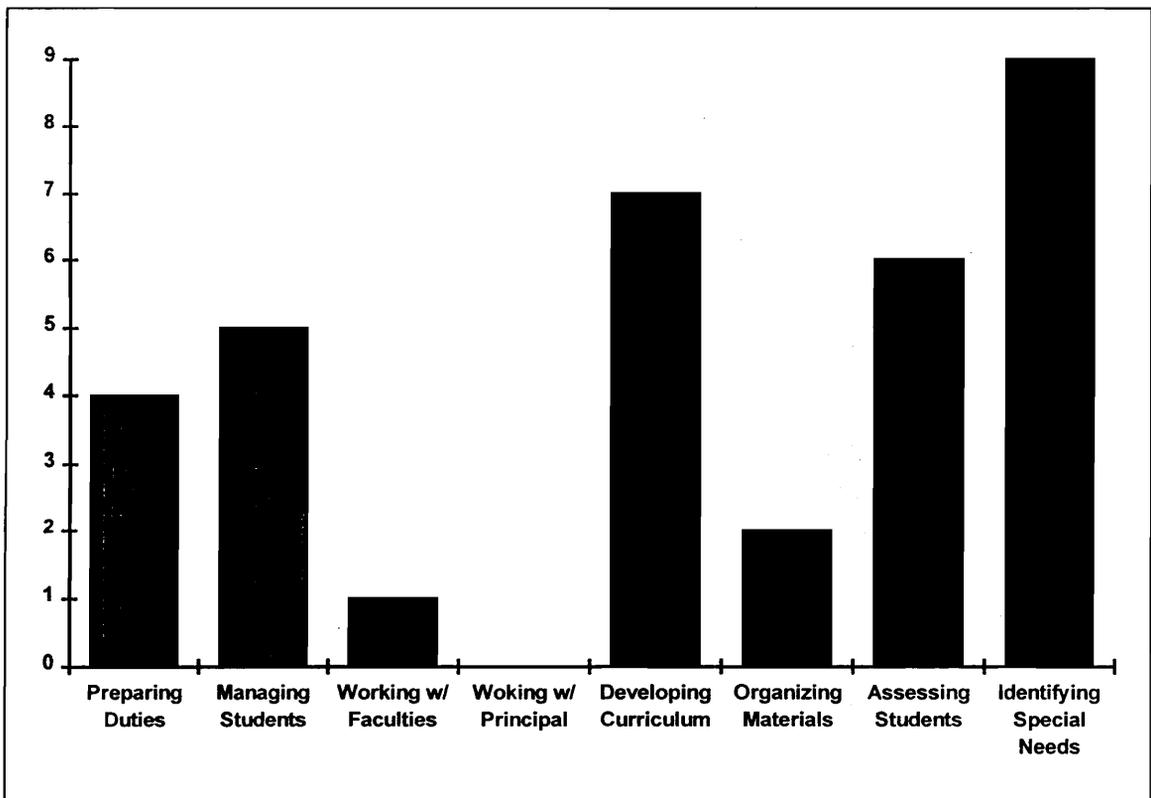


Figure 5: Distribution of Eight Teaching Tasks in Anxiety Quadrant Defined by the Challenges/Skills Ratio

A possible explanation may lie in the fact that after only one year in the classroom, these student teachers were still at the beginning of their development as practitioners. They had had little experience as a classroom teacher and they lacked elaborate schemata about students and their behavior. Their teaching schemata, or systems of meta-cognitive knowledge about students, were based only on "sketchy personal experience" and thus were largely undeveloped (Berliner, 1987, p. 75). Beyond the demands involved in teaching subject matter, one participant felt that working on a daily basis with a heterogeneous group of 42 children was very challenging. Each child required her attention and understanding:

I'm [so] overwhelmed with just becoming knowledgeable in content and knowledgeable in curriculum planning and design that trying to also take into account all 42 different kids and their learning, I mean I'm not able to do that. That's the most challenging.

She felt that the challenge of identifying students' individual needs was beyond her ability to manage. The perceived discrepancy between her current skills and the high challenge posed by various needs of her students appeared to be the source of her anxiety and thereby distracted her from enjoying her teaching. Another participant expressed her own anxiety of being unable to keep up with the pace of classroom and student behavior as desired:

Once I'm more comfortable with the kids and different teaching strategies and ways of doing, then I can start pulling from this repertoire out there in this resource library and pulling all of it together. But right now this resource library is nowhere organized. They're all just everywhere and I don't know how to pull them all together and say: this will work! So that's a professional kind of a challenge and exhaustion.

The participant's statement of "this resource library is nowhere organized and I don't know how to pull them all together" is a perfect metaphor for the novice's lack of an organized body of practical knowledge about teaching. When her undeveloped teaching schema was unable to accommodate among the needs of her students in terms of immediate and long-term significance, her level of anxiety rose.

The Task Most Highly Associated with Boredom: "Routine duties"

The activity most highly associated with boredom was "routine duties" (Figure 6).

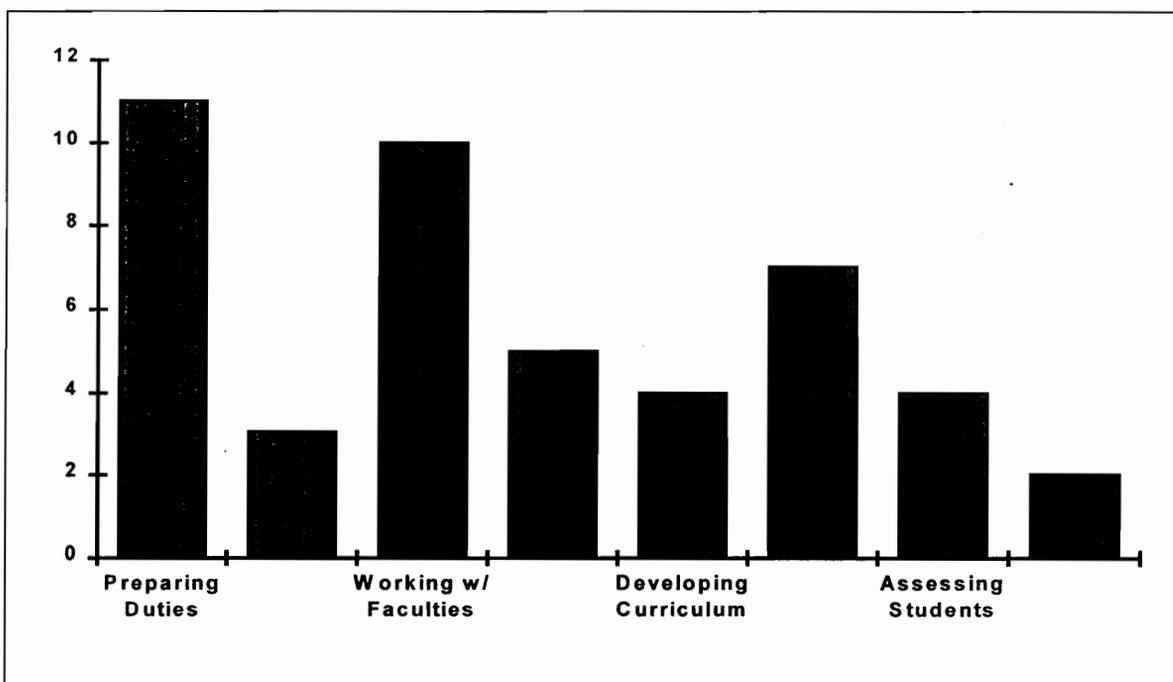


Figure 6: Distribution of Eight Teaching Tasks in Boredom Quadrant Defined by the Challenges/Skills Ratio

It is possible that the routines of routine duties did not provide sufficient opportunities for action, which not only produced a sense of numbing boredom but also reduced participants' motivation to perform. As one participant described:

I was required to go monitoring the hall and get them into the class. If they were late, make them go to the office and a tardy slip. Of course then the kid would come back five minutes into the class, interrupt class, interrupt me, I'll have to catch that student and it's really a pill. But it's a reality and that reality is really changing the color of the ideal of the way that I might have walked in a year ago and believed things could happen.

She certainly did not enter teaching to be a disciplinarian. Like this participant, the rest of the participants also reported having difficulty dealing with the administrative demands of their student teaching. The boredom in routine duties displayed by the above participant suggested that these student teachers may be focusing on the rules and restraints represented by the school and its demands, such as bus duties and paper work. They felt pressure to conform to the norms and expectations of the school site, rather than on finding intrinsically motivating or flow experiences that may be available within such obligatory situations.

The Task Most Associated with Flow: Managing Students

The activity most frequently associated with flow was the task of managing students (Figure 7).

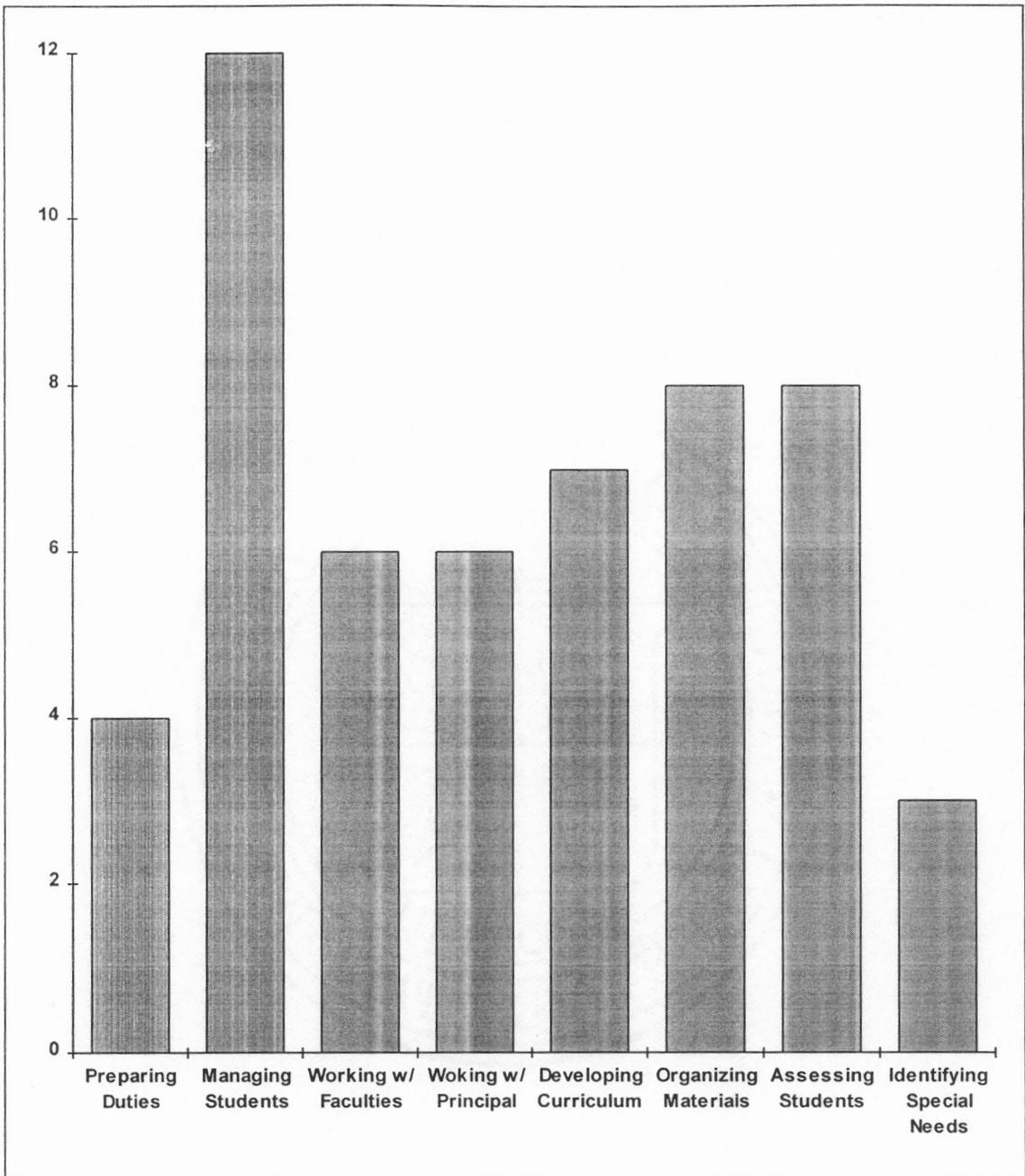


Figure 7: Distribution of Eight Teaching Tasks in Flow Quadrant Defined by the Challenges/Skills Ratio

Paradoxically, however, of the five interviewees, four expressed concerns about classroom management. For each of them, the central challenge for their student teaching was associated with discipline and experiences in that domain proved to be nearly overwhelming.

The thing that really exhausts me is just the constant discipline. I told one of the students today: sometimes I feel like a prison warden...It's not very gratifying when you have to fight with kids all day. It just feels like you're trying to control them rather than teach them.

One possible explanation for these students teachers to report such contradictory results between rating scale and interview data was the fact even though they confronted a tremendous challenge by gaining and maintaining classroom control, it was the very sense of meeting this daunting challenge that contributed to their opportunities to achieve flow. The management of students seemed to present a constantly increasing, yet manageable, set of challenges to these student teachers. Such tasks led them spontaneously to hone their skills. Csikszentmihalyi (1975) stated that the flow experience depends on the improvement of skill. The improvement of skills in classroom management was important because success in this domain provided positive feedback for the individual, as this participant further elaborated:

But the most rewarding thing about teaching is one of the hardest things about teaching also. They come into the class, they're noisy. But you can get them focused, get them to realize that you know that they're capable of success. I've seen where they've done some good stuff for me. Once in a while you'll see a spark and that's the most gratifying.

This participant enjoyed the feeling that students have learned as a result of her management efforts. Her enjoyment came from sharing the success of her students'

achievements which led her to feel that she was competently dealing with the demands of the teaching activity. Managing and disciplining students was a highly challenging task, which required strategic planning and evaluation of outcomes. But when she perceived that she was learning to master the task, she felt a sense of success.

Whereas the preceding discussion of findings relating to research question #1 involve both quantitative and qualitative data, the following analysis of findings relating to research question #2 are derived solely from the interview data.

Qualitative Findings of Research Question #2:

Categorization of Factors which Contribute to the Elements of Flow

According to the model, the flow experience consists of a set of interdependent elements: 1) balance between challenge and skill levels; 2) centering of attention on a limited stimulus field; 3) feeling in control of one's actions and the environment; 4) receiving focused feedback in response to actions toward a clearly-defined goal; and finally 5) enjoying the experience (Csikszentmihalyi, 1988). In other words, these elements were an integral part of the challenges, skills, choice, goals, feedback, and enjoyment. These five elements were used to draw together a large number of similar data content found in common among the participants.

The analysis of the data involved classifying the twenty factors into the five general elements of flow. The result can be seen in Appendix C. There were twenty themes which represented the ideas expressed by five interviewees in response to each of

the main questions of the interview. These themes were as follows: high motivation to achieve goal, receive positive feedback from students, restructure the challenge to make it more enjoyable, receive positive feedback from teacher(s), enjoy the experience, willing to take risks, self-focused, growing awareness of herself and her own ability, feel confident, clear goal, blocking out the negativity, feel good about herself, positive attitude, feel in control, freedom to try it all, no outside pressure, putting things into new perspectives, willing to seek help from her teacher, flying high, and access to decision-making. These classifications were drawn primarily from the research of Jackson (1992), and to a lesser extent from the research of Bullough (1989,1992), Csikszentmihalyi (1988,1990), and Plihal (1982). See appendix D.

Despite the individual differences among participants, the interviews confirmed that the five elements of the flow proposed by Csikszentmihalyi (1988) were in fact perceived by the participants to be characteristic of their student teaching experiences. Nevertheless, some of Csikszentmihalyi's elements of flow were more applicable to these student teachers' experiences than were others. The rank order of the elements of flow in this study according to the number of responses was as seen in Table 1.

The results revealed that receiving focused feedback in response to actions toward a clearly-defined goal was the most significant element, with 84 out of 217 responses referring to factors classified under this element. The second part of this analysis will focus on how participants described their flow experiences in their own words. Each part

of the discussion to follow will focus on one element identified as affecting the participants' capacity to experience flow.

Table 1: Rank order of the elements of flow according to the number of coded responses

Elements of Flow Experience	Total # of Participant Responses
Clear Goal / Focused Feedback	84
Feeling In Control of Herself and Ability	60
Centering Attention on Limited Field	32
Challenge and Skill Levels are Balanced	24
Enjoying the Experience / Autotelic	17

Clear Goal / Focused Feedback

The result of the content analysis showed that the most important factor in facilitating flow experience was receiving focused feedback in response to actions toward a clearly defined goal. One participant articulated her sense of the importance of conceptualizing clearly defined goals:

I would say that if you're coming to teach at any point of time, the organization of who you are and your thoughts for what should happen that day, is a must. Because you know where you're headed, ultimately in a month you hope you've gotten to, then whatever happens in those days in between, you can be flexible, you can be spontaneous and say: let's try something different.

Since she knew that she herself had chosen whatever goal she was pursuing, she could adjust her actions to better meet the demands of the activity, if necessary. Therefore, she had a feeling of control over her decisions. She could also modify her goals whenever the reasons for preserving them no longer made sense. In that respect, her behavior was more flexible.

Nonetheless, the demands these student teachers perceived were rarely clear and noncontradictory. The amount and pace of classroom activity was so overwhelming that it was difficult to think about alternative options or decide what to do next. One participant employed the notion of puzzle-making to clarify her goal step by step:

You know you have something to accomplish with them but you're not quite sure how you're gonna do it. You start finding pieces of how you can fit these together for the kids. So you got this one piece of somebody told you that and somebody else told you and then you keep gathering all these pieces. Once you have all these ideas, it's like different pieces to a puzzle and then you put it together by the end.

The participant was able to find ways to accomplish her goals by breaking down a formidable task into smaller, more manageable pieces. All these bits of information were important cues that she used to monitor the progress of her teaching. In some teaching activities where goals were not clearly set in advance, she was able to develop a strong personal sense of what she intended to do. Another participant also conveyed the enjoyment of teaching by establishing a clear goal for her lesson-planning. She described how planning and organizing a lesson was both incredibly time consuming and exhilarating:

I think the most optimal for me is in the planning and designing stages, when I'm actually gone out in my research and I got all these books in front of me and I'm trying to figure out and I'm thinking: how do I pull all these together and actually design the class and figure it all out. It just feel so good right there. That's when I like it, that's when I'm really into my glory.

To the degree that she approached the flow experience while organizing her lesson plans, this participant learned to use the metacognitive strategy of self-evaluative feedback that provided her with an intense satisfaction rarely available in the classroom setting. Instead of worrying about how she was doing in the eyes of others or how she looked from the outside, she was able to block out all the troubling thoughts that ordinarily passed through her mind while in the classroom teaching. The question then arises: Was this student teacher in flow because she considered lesson-planning to be a professional problem her skills could master? Or was she depriving herself of an opportunity to grow by paying attention only to what she was already familiar with? Perhaps both interpretations are possible.

In addition, knowledge of good performance played a large role in keeping one participant motivated. Receiving positive feedback in the form of observed improvement in her students' performance kept her confident that her effort was the source of student's success:

A lot of times even if one thing gets right during the day, it will make my day. And it doesn't have to be like a big thing, it could be little things like kids that start reading and they read the whole sentence when they couldn't even read like a couple of words. So that make me feel good no matter what.

Novice teachers, however, frequently have difficulty accepting that their actions do in fact contribute to their students' success or failure (Bullough, 1992). Unable to evaluate

what was going on around them, these students teachers needed to know, even more than experienced teachers, whether or not what they are trying to accomplish was actually coming to pass.

Feeling In Control of Herself and the Environment

The second important characteristic in facilitating flow for these participants was a sense of control over one's actions and one's environment (Csikszentmihalyi, 1975). When people experience flow, they exhibit a sense of masterly control over the task at hand. The following example describes how confident a participant had become and how much she had learned from her previous mistakes:

Like yesterday my lesson went bad and I fell flat on my face and I try to figure out how can I fix it. The second day I came back and restructure it so that it's what I wanna do. So I can try anything and get up there and literally falls on my face with the lesson and not to worry about people and then talk to him [the cooperating teacher] later and figure out how to fix it.

This participant was not particularly concerned by having made mistakes or having lost control. She not only admitted that the lesson did not go well but also actively sought understanding of why it did not go well. It is only through this kind of reflection that a teacher can learn from her experience and continue to develop as a knowledgeable practitioner.

Centering Attention on Limited Stimulus Field

The third characteristic of a person in flow was a complete focus of attention on the task at hand, leaving no mental room for attending to irrelevant information (Csikszentmihalyi, 1990). The person is temporarily able to forget all other aspects of her experiences because only a very select range of information can be allowed into awareness during the flow state. One participant noted, for example, that metacognitive self-evaluation that she was able to screen out her concerns about her success or failure in the eyes of others:

To me everyday that you're in there as a teacher, if you can walk away and say: once I've really learned something about the content, about kids' reactions to it, about things that they're capable of doing and the way that you're capable of doing things, you've had a wonderful day no matter how horrible on the surface it might seem.

Challenge and Skill Are Balanced

According to the flow model, whenever the challenge of the activity perceived by the individuals are equal to their capabilities, the individuals were said to experience flow (Csikszentmihalyi, 1990). Part of this perceived balance may result from teachers' control over the extent of the challenges and the skills needed to enjoy an activity involved in their work. For instance, although one participant initially was reluctant to teach the “novel unit,” she found a way to restructure the challenge in the situation and thereby to avoid the twin pitfalls of anxiety on the one hand, and boredom on the other:

The main challenge for the teaching was developing the novel unit. But it's one of the things you have to do it so I use it as a base. I don't have much control over

the curriculum at all. But whatever activities I wanna do, I just take it and run, whatever I can do to make it change, to make it that I'm interested in and then I put it together.

Flow does not happen without the application of appropriate skills. She felt good because she had re-designed the lesson the way she wanted. By stretching her skill to cope with the challenge of the task, this participant was able to improve the quality of her experience. Thus, her opportunity to experience flow was broadened.

Autotelic Experience / Enjoying the Experience

The final characteristic of a person in flow is the autotelic nature of the experience, which was evident in the participants' enjoyment of the activity itself. The term "autotelic" derives from two Greek words, auto meaning self, and telos meaning goal. It refers to a self-contained activity, one that is done not with the expectation of some future benefit but simply because the act of performing the activity is the reward (Csikszentmihalyi, 1990). For instance, one participant indicated that regardless of the outcome of the activity, the sheer pleasure of interacting with her students became intrinsically rewarding:

I think the most rewarding thing is when the students trust. Maybe it's the counselor part of me...but just to get a rapport and bond with them is much more rewarding to me. When you look back at a year or your whole experience with kids, I think you look back at how you communicated with that child and how you interacted with them in every situation.

When this participant enjoyed teaching because she enjoyed interacting with children, her experience could be defined as autotelic. She was paying attention to the activity for its

own sake. The experience contained its own reward. Of course people need external incentives to take the first steps in any activity which requires a difficult restructuring of attention. Most enjoyable activities, such as teaching, are not natural; they demand an effort that, initially, the individual may be reluctant to make. But once the participant become focused and the activity provides a pleasure inherent within the act itself, the activity itself begins to be intrinsically rewarding (Csikszentmihalyi, 1990).

Interview Summary

In summary, the information gathered in the interviews suggested that the importance attached to flow by the interviewees clearly demonstrates the significance of this phenomenon. In addition, the flow elements were interrelated and dependent on each other. For example, when the participant's attention was centered on a limited stimulus field and the distractions of the environment were eliminated, she felt in control and able to recognize what action needed to be taken. In turn, those individuals who knew how to maintain the balance of challenge and skill were able to transform a hopeless situation into a new flow-producing activity and thereby stay in flow.

After grouping twenty factors into five general categories of elements affecting flow experience, the next step was to cluster participants whose predominant modes of functioning fell into the same quadrant, based on the rating scale data. Categorizing the five volunteer participants according to the four quadrants in Csikszentmihalyi's model allowed for inquiry into qualitative similarities and differences reflected in the coded

interview data across the four different quadrants. However, in order to interpret these data meaningfully, it is necessary to briefly introduce these five interviewees.

Jennifer

Jennifer (age twenty-four) had received her bachelor's degree in Psychology. After substitute teaching a class for her friend's mother and after beginning to work with young people, she discovered happily that she had found her career niche. She was student teaching in a third grade classroom. Jennifer worked in an open-space school and the environment arrangement seemed to constrain her from creating as much variety and stimulation as she would like. "It's very intimidating because you are always thinking whether or not other teacher can tell if I have no control over the class," she noted.

Jennifer rated the task category of "routine duties" as her most skillful area. Cumulatively, the result of her rating scale data showed that most of her responses fell into the boredom quadrant (62.5%). Only two of her eight responses fell into the quadrant of flow.

According to the transcribed interview content, she was pleased with some of her accomplishments. She recognized that she had made progress in teaching the "novel unit" and she ended the year feeling very optimistic about herself and about teaching.

Sarah

Sarah (age not revealed), a mother with a very young child, considered teaching as a career after her husband has received his Masters Degree. Originally she had planned to pursue her bachelor's degree in education. She then found herself not interested in teaching at that time and switched to science and received her bachelors in Horticulture. After having a child, however, she realized how much she was learning about child development as a parent and began to hope that she nurture other children and contribute to their cognitive development.

Sarah was student teaching the subjects of life science and reading in the middle school. Her goal of teaching was to connect with her students and to share her enthusiasm of science for them. She thought of teaching as an extension of parenting, a view strengthened by teaching Sunday school in her church. As a child of two retired veteran educators, Sarah had been exposed to the culture and expectations of the profession prior to student teaching. Her parents emerged as a critical factor in her understanding and approach to teaching since her conceptions of teaching and of herself as a teacher were derived from them.

While Sarah generally felt good about her relationships with the students and was only somewhat concerned about student discipline, as the days progressed she was puzzled by the poor student attitudes toward learning and she became frustrated by her inability to carry out engaging activities as she desired. Although she tried to engage and motivate students by using hands-on lessons and other ideas for presenting material, she

was overwhelmed by how little she had known about her students' background and their indifference to learning. By the middle of the semester, Sarah started to worry about whether or not she would be able to connect with the students in caring ways. She was unprepared for the students who greeted her. For a person struggling with a hostile environment to defend herself as a nurturer--one who desired to foster her students' growth--student challenges to her authority were hard to comprehend.

In addition to being bothered by the lack of student interest in learning and by discipline problems, she felt powerless to help students who appeared to be self-destructive (she had two students who tried to commit suicide during the week of the interview).

Kim

Kim (age twenty-four) had regarded herself as a "good student" in school when she grew up. Working with an "at-risk" girl on an individual basis during her junior year in college prompted her decision to become a teacher. What was appealing to Kim about teaching was that it was more challenging and interesting than many other jobs she had had. She then decided to become certified to teach K-8 after receiving her bachelor's degree in Family and Child Development. She was student teaching the subjects of language arts and social studies at the sixth-grade level.

Her first cooperating teacher played a key role in influencing her perspectives on teaching. Through the cooperating teacher, Kim learned the importance of spontaneity and creativity: "Sometimes I change the lesson plan even course by course," she

admitted. Without the encouragement of this cooperating teacher, Kim said she might very well have quit teaching. However, one incident did tend to undermine her positive outlook toward her students and as well as her teaching approaches. One student stole a book, which Kim was supposed to read in the class, because he thought the book was boring. Instead of dragging the student to the principal's office, she confronted him the unacceptable behavior and the negative impact of this incident in that she had lost trust for the rest of the whole class. Afterwards, Kim realized that she needed to build a curriculum that would increase opportunities for student participation rather than simply reading from a book.

She rated herself as the most skillful in the task of organizing materials.

Amy

Amy (age thirty-nine) who characterized herself as a "non-traditional" graduate student. She had received a Master's degree in business and a Bachelor's degree in Finance. She was student teaching social studies and English at the eighth-grade level. She rated her ability to organize materials as her most competent area (9 on a 10-point scale). This self-evaluation directly reflected her extensive experience with organizational tasks during her career in business for the past eleven years.

Amy seemed highly motivated and was very eager to learn. For her, teaching young people meant challenging them to progress and this meant challenging them

intellectually. Initially she thought of teachers as subject-matter experts. She had high expectations of what a teacher should be.

Discipline was occasionally a big concern as when her teaching was interrupted by students who came back from the principal's office. In general, she enjoyed her teaching, but the discipline problem influenced how she felt about teaching and herself as a teacher.

Karen

Karen (age twenty-six) was student teaching in language arts, social studies, sciences and math at the middle school level. After receiving her Bachelor's degree in Psychology, she worked as a social worker, teaching clerical skills to schizophrenic patients.

Karen's rating of skills was highest in the activity of working with faculty. Interestingly enough, according to her transcribed interview content, she was more anxious than the rest of the interviewees with regards to establish interaction with the cooperating teacher. It appeared that Karen encountered a school environment in which she was surrounded by negative attitudes on the part of teachers toward students.

She remarked that the most rewarding aspects of her student teaching experience was winning the trust of her students. She thought of the ideal teacher as friendly, warm, and--especially--humorous. This explained why Karen thought of the aim of teaching entirely in interpersonal terms, such as being trusted by her students. It was from the

establishment of friendly relationships with the students that Karen found pleasure in teaching.

Data Analysis of Question #3:

1) Quantitative Differences among Flow-Quadrant Student Teachers

In order to determine in which of four challenge-skill quadrants these five participants could be categorized, the mean ratings on their skill levels and challenge levels were compared. The results, as seen in Table 2 , revealed the predominant quadrant orientation for each participant:

Table 2: Predominant quadrant orientation for each participant

Participants	Challenge	Skill	Quadrant
Jennifer	5.625	8	Boredom
Sarah	5.875	6	Flow
Kim	5.875	6.5	Flow
Amy	6.625	6.125	Flow
Karen	7.875	5.75	Anxiety

A comparison of the responses reported by Sarah and Kim with those of Amy shows that for Amy the theoretically expected pattern of optimal experience for flow is significantly confirmed (i.e., challenge level is slightly higher than skill level); for Sarah

and Kim, however, the skill level is slightly higher than the challenge level. Although the general pattern of association between challenge and skill levels was similar for these three participants, Sarah and Kim showed a preference for situations of higher personal control in which their skills were perceived to be more than adequate for coping with the challenges. These patterns suggest that Amy enjoyed her teaching more when she encountered a relatively high degree of teaching challenge when she is teaching, whereas Sarah and Kim enjoyed teaching more if they felt that their teaching held fewer challenges. Interestingly, data from Amy's interview transcript coincided with the results of her rating scale data. Among her transcribed responses coded within the flow quadrant, her willingness to be challenged was the most distinctive. The following example vividly illustrated Amy's willingness to take risks by attempting a variety of teaching strategies:

Never being satisfied, I was feeling like you can do more, do better and that means that I'm never going to be satisfied that this was the best way I could have run this lesson. I just finished poetry and I never taught poetry before and I love it! I think I did a wonderful development in design of this. Oh boy, I started all over again and do it completely different.

It was this ability to stretch to the fullest of her capacities in order to take on a heightened challenge which allowed Amy to stay in flow condition.

Data Analysis of Question #3:

Qualitative Similarities among Flow-Quadrant Student Teachers

Despite the quantitatively-defined individual differences among the three flow-quadrant participants, two distinct similarities were observed in the way they restructured their perceptions in order to cope with the challenges of student teaching. This section examines two common strategies employed by the flow-quadrant participants in order to facilitate flow in their classroom experience: a) flexibility and b) positive thinking.

Flexibility

The first flow-enhancing strategy was flexibility. Amy explained the role played by flexibility in her enjoyment of teaching:

I learn from each and every time I teach English, so maybe the first time I teach it, something doesn't go quite right. So the second time I teach it, I've made an adjustment and then to the third I may even make one more adjustment. And I pick up on reactions of kids: do they react to the way I expected them to or I hope them to? I don't always have an answer, but I might try a little something different.

She was willing to learn from her mistakes and she was constantly reflecting on what went wrong and on how to make adjustments for future lessons. This opportunity to practice and to fine-tune instructional strategies increased the likelihood of improving her pedagogical skills.

Positive Thinking

The next strategy that these flow-quadrant participants shared was their positive attitude toward teaching. In general, flow-quadrant participants not only exhibited a positive attitude, but they also demonstrated a capacity to monitor cues for anxiety and to identify situations that trigger worry. As Kim described her way of dealing with the negative attitudes toward students among teachers in her school:

I try to really focus on a lot of the positives of the kids and what they do more than the negatives because I think sometimes that gets in the way and that makes me view them in a different way. Because I think in teaching, if you focus on the negatives all the times, for me it would disturb my teaching.

From the perspective of flow theory, optimism is a mechanism that buffers Kim against falling into apathy in the face of setbacks. This positive attitude allowed her to make the best use of the skills she may have to handle these setbacks rather than worrying about what can go wrong (Goleman, 1995). The following example describes the other flow-quadrant participant, Amy, who also showed a positive attitude toward her field experience by recognizing her progress:

To me everyday that you're in there as a teacher, if you can walk away and say: I've really learned something about the content, about kids' reactions to it, about things that they're capable of doing and the way that you're capable of doing things, you've had a wonderful day no matter how horrible on the surface it might seem.

Like Kim, Amy similarly described in positive terms teaching experiences that resulted in learning on her part. The optimism fostered by such recognition of their own progress made these participants more willing to take risks and to seek out more demanding challenges.

Summary of Similarities of Flow-Quadrant Participants

In summary, the flow-quadrant participants associated attainment of flow with their efforts to exhibit flexibility as well as their efforts to view their experiences in a constructive light. One possible explanation for the fact that Sarah, Kim and Amy tended to experience flow in teaching more readily than did the other interviewees was that they have had extensive work experience or some positive prior experience with the educational system. Such informal learning experience in the past offered opportunities to experiment with and to internalize a wide range of beliefs and values. As will be shown in the section to follow, other common traits, as well, distinguished these flow quadrant participants from the other participant volunteers.

Data Analysis of Research Question #4:

Differences Between Flow-Quadrant and Non-Flow-Quadrant Student Teachers

Four distinctly different behavior patterns distinguished flow-quadrant from non-flow-quadrant student teachers: a) the meta-cognitive awareness of her own ability; b) willingness to seek help; c) a tendency to welcome challenge; and d) the ability to cope with stress. As shown in Table 3, each of the four dimensions can be viewed either positively or negatively:

Table 3: Four behavior patterns distinguishing flow-quadrant from non-flow-quadrant student teachers

Flow-Quadrant Participants	Non-Flow-Quadrant Participants
Clear Meta-Cognitive Awareness	Vague Meta-Cognitive Awareness
Willing to Seek Help From Mentor	Withdrawn From Mentor
Welcoming of Challenge	Reluctant to Take On Challenge
Able to Cope With Stress	Distracted by Stress

Each of the foregoing contrasts between flow-quadrant and non-flow-quadrant participants will now be examined in greater detail.

Clear vs. Vague Meta-Cognitive Awareness of Their Own Abilities

Student teaching offers an avenue for cultivating a better understanding of self and of others. The flow-quadrant participants in the present investigation demonstrated an emergent development of personal knowledge. They actively struggled to formulate and to understand their goals and purposes for teaching and thereby developed an improved sense of how they could reach those goals. They knew why they wanted to be teachers and what they wanted to accomplish. For example, as Sarah put it:

It [the student teaching] really made me think things through. It forced me to think about who I am and I think it has helped me kind of take a look at what I want and think about others and relate that to my experiences. I think teachers really need to do that, they need to know themselves before they can do a good job of teaching.

She further explained the connection between self-awareness and purpose of teaching:

Because who you are is going to be reflected in your teaching, if you don't know who you are, how can you know what you wanna teach or how you wanted teach or how can you think that you can help a child? I think that teachers need to realize that 'who' is a very big part of how they're going to teach and they need to be aware of that because they might need to make some adjustment that are interfered with what's best for the students.

For Sarah, self-awareness was crucial to the experience of flow in that she had to be in tune with herself and with what she was doing in order to experience flow in that activity. Through this reflection, her own purposes of teaching were adjusted in order to achieve a productive course of action (cf. Schon, 1987). Another flow-quadrant participant, Kim, initially conceived of a teacher as a subject-matter expert who possesses tremendous knowledge to be passed along to students. It was during her student teaching that she found that subject matter was only a very small part of the teaching:

When I first start teaching, I never had discussions with the kids, I've never ask them questions and stuff. I was afraid and also I feel like as a teacher I felt like I had to give them information all the time...Now I do a lot of discussions, and getting them to discuss it among themselves as well as just discussing it with me.

These comments revealed that Kim's personal definition of teaching changed through the process of learning to teach. Her ability to implement discussion in her teaching has grown over the year. By contrast, the non-flow participant, Karen, appeared to face stressful self-doubts:

I'm grading my poetry folders tonight and they're not doing so well on them or the kids that I thought would do well are not doing well. Not that I expect everyone to get an A but it just makes you feel like a failure sometimes like: Did I do something wrong here? You have all these questions running through your head.

Taken out of context, Karen's remarks might be interpreted as an acknowledgment of her perceived responsibility for the consequences of her own actions. When interpreted within the context of data generated in the course of the interview as a whole, however, these remarks may signal a need for a more clearly defined self-image as a teacher.

Understanding the effects of a weak, confused, or contradictory self-image as a teacher in Karen's attempt to define a productive teaching role helps to explain the different reactions between flow-quadrant-participants and non-flow-quadrant participants. Despite the overall insecurity felt when first confronting the challenge of learning to teach, a relatively strong self-awareness offered the flow-quadrant-teachers comparatively more productive skills for responding to problems and thereby deciding on courses of action seen as possible and desirable (Bullough, 1992, p. 81).

Seeking vs. Not Seeking Help From Mentor

The next category that differentiates flow-quadrant from non-flow-quadrant participants is the way in which these student teachers perceived their relationship with the school environment, especially with their cooperating teachers. For instance, when Sarah was overwhelmed by recognizing how little she knew about her students' learning styles, she attempted to restructure her professional practice by seeking assistance from her cooperating teacher

It's not that difficult to find a good lesson material and to organize that, but to carry it out and think through the linguistics of carrying out that lesson is a challenge. That's more of a skill than people give it credit for. That's one way my cooperating teacher has been good about help me realizing that the instructions

need to be given at the first and they need to be given very clear. So I think that has been the most helpful.

Even though Sarah disagreed with the teaching style of her cooperating teacher, she was willing to seek help from the cooperating teacher and thereby learned valuable instructional tactics. It was at this point that Sarah, feeling reasonably confident and secure in the classroom, started to focus more on the improvement of her teaching which resulted in an increased level of control over the teaching situation.

Similarly, Kim expressed her gratitude at how much her cooperating teacher had influenced her attitude toward teaching:

The whole time that I was there, she always encouraged me. She never said anything negative. It's amazing that she always had something positive to say. She'd say: don't worry, you're only starting. It's good practice. I think I learn from her to be flexible, creative as possible, always looking for new ideas, always challenging yourself to find something better. I think she gave me a lot more confidence in discussing and talking with kids. And so now I do a lot of discussion.

Primarily her cooperating teacher served as sounding board for her and offered her encouragement when she was most upset about teaching. Her cooperating teacher also offered her advice on how to cope with problematic situations and thereby helped to minimize her self-doubts. Influenced by the example set by her cooperating teacher, Kim tried to enact lessons that were creative, active, and fun both for her and for her students. More importantly, her cooperating teacher rescued her from discouragement and enabled her to complete the year with feelings of success and of belonging.

By contrast, Karen disagreed with the teaching style of the second of her two successive cooperating teachers. Her interaction with this cooperating teacher was a

source of anxiety and frustration. She perceived herself as capable of handling a cooperative teaching situation but felt that she was being placed in a subordinate role. This negative experience affected the rest of Karen's student teaching and seemed to contribute to the fact that she had the highest percentage of responses in the anxiety quadrant among the five interviewees (37.5%).

Although Karen rated herself as highly skilled in the area of working with faculty, she expressed more anxiety than did the rest of the interviewees concerning the mentoring relationship. Lacking a clear sense of herself as a teacher, and being highly dependent on students and on her two successive cooperating teachers for her feeling of success, Karen did not frame problems in productive ways. She interpreted what she termed her second cooperating teacher's 'meek attitude' as a personal rejection, which caused her to feel insecure. She had been trying to prove herself to her second cooperating teacher, but she began to feel isolated. Thus, she withdrew from the cooperating teacher and relied on her own resources to pull herself by her own bootstraps:

Whenever I had a bad day, I talked to people about it, that always makes me feel better. Or I can always call my mom and she would tell me what a great person I am and it would be all right. She always makes me feel like what I'm doing or I'm trying to do is just like the best thing I can ever do...Stuff like that makes you feel really good, when people have respect for what you're doing because I don't think teachers get that a whole lot. I guess you have to seek it from the people that are close to you.

Rather than seeking out professional help and advice, Karen assumed that there was nothing she could do to make things better. To compensate for this negative experience, Karen spent more time seeking help from friends and family, an activity that was

accompanied by positive moods. She preferred to share her frustrations with out-of-school referents, which only decreased her sense of engagement.

It appeared that Karen had invested so much in being liked by her cooperating teachers that the only feedback she took into account was approval and reassurance by others. She held tightly to the memory of what had gone well with her last placement, especially her good relationship with her first cooperating teacher, and she found confidence in the care and respect shown by him. On one hand, her former cooperating teacher built Karen's self-esteem and helped her to survive the first semester with feelings of success. But on the other hand, it may be the case that the first cooperating teacher created unrealistic expectations on her part for praise. At any rate, Karen was struggling to overcome feelings of anxiety that must be faced in order to find herself as a teacher.

Welcoming vs. Reluctant To Take On Challenge

According to Csikszentmihalyi, the most basic condition for a flow experience is to provide for a clear sense of challenge. But no matter how many possibilities the environment offers, one cannot enter flow unless the challenges become personally meaningful (Csikszentmihalyi, 1988, p.382). The difference between someone who enjoys teaching and someone who is overwhelmed by it is determined by whether or not she perceives challenges as threats or as opportunities for action. For instance, Sarah perceived her unsuccessfully taught lesson as a good opportunity for learning how to improve her teaching skills, rather than feeling defeated:

I realize that I'm being a little unjust and my expectation [of my students] has been a little bit unrealistic. And I think that's the value of the experience. My cooperating teacher let me do it and fall on my face...And that's fine, that's the best way to learn. So now you know you have to stop and you re-think things and do them again.

Although regret about her past action remained, Sarah conveyed her feeling that she should be able to meet the needs of her students by increasing her sensitivity to students' individual learning styles.

Csikszentmihalyi's flow theory shows how properly balancing challenge level with skill level is necessary to avoid boredom on the one hand, or anxiety and apathy on the other hand. The following example shows the boredom experienced by Jennifer when she doubted the educational validity of the material she was required to teach:

Having to do the novel unit kind of goes against some of my beliefs so that makes it hard to do. I just don't know how to do it. I don't see the purpose for doing it...I just stretch through it, and I know they picked up on it and they stretched through it, too...And then after a while not only kids got bored doing that same way but I got bored. And when I got bored I don't wanna do it, that wrapped up [rubbed off] on the kids, they don't wanna do it and you don't get anywhere.

The above interview excerpt reveals that 1) Jennifer had difficulty attaching a personal meaning to the challenge involved in the activity and/or 2) she did not recognize the degree of skill being demanded by certain tasks.

Coping with vs. Being Distracted by Stress

All of the participants encountered unpleasant situations such as discipline problems and constraints freedom on their decisions regarding teaching strategies, but the flow-quadrant and non-flow-quadrant participants took two opposite courses of action. A

positive response, termed "mature defense" (Csikszentmihalyi, 1995), seemed to predominate in the case of the three flow-quadrant interviewees. A negative response to stress, termed "regressive coping" characterized the behavior of the one non-flow-quadrant interviewee.

As a flow-quadrant interviewee, Sarah's strategies for coping with stress were very efficient. She seemed to have a capacity to construct her teaching experience meaningfully and to resolve the pressures of the environment that she faced. For instance, the major source of the stress for Sarah was that her cooperative teachers preferred to teach in certain ways and indicated her preference for quiet and order in the classroom, but Sarah wanted to try her own less traditional teaching strategies. When the way her cooperating teacher taught contradicted with theories that had been conveyed in her education courses, her enjoyment in teaching may have been reduced because she was struggling to find a balance between respecting the seniority of her cooperating teaching and demonstrating her ability to teach.:

I come home very exhausted because you're in somebody else's classroom, and you're trying to not step over your balance there and yet you're trying to show them that you have the ability to teach. It's very hard because you feel like you need to teach a certain way because that's how you've been taught here, and you're excited to try some of those things out of course.

After recognizing the source of her stress, she re-assessed her own priorities and the destructive effects of stress were thus lessened:

She had over 20 years of teaching experiences. Whether I agree with her teaching style or not, there's certain amount of professional respect that I have to give her. So I haven't pushed a lot to control the environment. I feel like I kind of know

where I am going enough that I won't have trouble once it's my own class to establish the environment that I want.

Sarah's quiet self-confidence, as reflected in the final statement above was apparently at least temporarily undermined when, during the week of the interview, a couple of her students committed suicide. These traumatic events deconstructed the normal course of her daily teaching, impelling Sarah into a state of self-doubt. However, this trauma ultimately caused Sarah to maximize her skills to cope with the stress, to achieve a sense of balance with her environment and to focus her attention on concrete tasks. Despite discipline problems and traumatic events involving her students, 62.5% of her total responses still fell into the flow quadrant.

By contrast, Karen was distracted by a sequence of stressful events over which she had little control, which distracted her attention from and diminished her sense of flow in her student teaching:

Now we are applying for jobs and sending out applications and so you can't even completely focus in on the classroom because you've got those other things target at you. Sometimes I don't know that I can handle it. Everyday I just see how little I have done. And it's emotionally stressful because it will physically wear you down.

The reason these events were seen as stresses was due to her inability to re-assess her priorities in order to prioritize her activities accordingly. Instead of concentrating her energy in the service of high-priority, she was distracted by a sequence of stressful events over which she has little control.

Review of Conclusions

The analysis of both quantitative and qualitative data yielded the following findings:

1. Comparison of the responses on perceived skills and challenges among twenty participants showed that the levels of challenge and the levels of skill were both relatively high and roughly matched. The perceived levels of challenge of the task demands were slightly higher than the perceived levels of skill of the participants. In terms of percentage of participant responses within Csikszentmihalyi's four quadrants, the data revealed that more responses fell into the quadrant of flow than into non-flow quadrants.

2. The activities most highly associated with flow were managing and assessing students. This finding coincided with the two major types of flow experiences which emerged from qualitative data: a) enjoying the feeling that students have learned as a result of the student teacher's efforts; and b) enjoying the experience of interacting with students. Although managing students was also among the activities which were associated with anxiety, the process of interacting with students and sharing the success of their students led these participants to feel that they were adequately dealing with the demands of the student teaching and eventually increased their potential to experience flow.

3. Flow was manifested in the student teaching experience. The participants' descriptions of the flow experience were consistent with the definition of Csikszentmihalyi's (1975) theory, which consists of five inter-related elements: a)

focused feedback; b) feeling in control; c) centering attention on a limited stimulus field; d) balance between challenge and skill levels; and e) enjoying the experience.

Nonetheless, some of Csikszentmihalyi's elements of flow were more applicable to this group of student teachers' experiences than were others. The results of this study show that receiving focused feedback in response to actions toward a clearly-defined goal was among the most significant elements tending to facilitate flow on the part of the participants.

4. Two strategies for cultivating flexibility and positive thinking were observed in common among the three flow-quadrant interviewees in that they all restructured their perceptions in order to attain flow, even though the conditions under which they experienced flow differed (i.e., Sarah and Kim who preferred to feel in control, experienced flow only in situations in which their skill and challenge level were evenly matched, whereas Amy experienced flow only when the challenge level of a task slightly exceeded her skill level).

5. Four distinctly different behavior patterns distinguished flow-quadrant from non-flow-quadrant student teachers: a) the meta-cognitive awareness of her own abilities; b) willingness to seek help; c) a tendency to welcome challenge; and d) the ability to cope with stress. Thus, it can be seen that a crucial determinant of flow vs. non-flow outcomes seems to be the adoption of either a positive or a negative outlook on various dimensions of the student teaching experience.

Chapter 5

SUMMARY & IMPLICATIONS

This investigation has been a learning experience for the investigator. These five student teachers certainly proved to be information-rich cases as they were predicted to be. The willingness and openness of the student teachers during the interview was probably the most gratifying aspect of the process from the investigator's perspective. Almost without exception, the five student teachers who were willing to participate in the interviews were very interested in and challenged by the interview questions, and very willing to share their experiences.

Some of the main issues that arose during the process of research are discussed below. First, the conclusions of this study are summarized. Secondly, the strength of the study is discussed. This is followed by a discussion of three practical implications for enhancing the student teacher's ability to enhance flow. Finally, the recommendations for future research are addressed.

Strength of This Study

The inclusion of interview and rating scales was a strength of this study. The rating scales used in this study provided quantitative data that were compared with the analyzed qualitative data from interviews. The two forms of data, qualitative and quantitative complemented each other, thereby strengthening the credibility of results. It

is a good way, for example, to observe whether the participant who is categorized in the flow quadrant based upon the rating scale data also describes flow experience during interview. The five interviewees' verbal statements, in turn, lent support to the conclusions drawn from the analyses of the rating scales.

Summary

The purpose of this study was to describe the factors that give rise to flow within the context of a student-teaching classroom by utilizing Csikszentmihalyi's flow theory. Twenty participants individually completed a rating scale twice to reveal their perceived levels of challenge and perceived levels of their skill in respect to eight teaching activities. Then, five of them volunteered to be interviewed afterwards. The participants ranged in age from 22 to 39 years.

The information generated by the rating scale indicated that the perceived challenge levels of the task demand were slightly higher than the perceived skill levels of participants. In terms of percentage of participants' responses within each of Csikszentmihalyi's quadrants, more responses fell into the flow quadrant than non-flow quadrants. Both of the results showed that there were good capacities of achieving flow among this group of student teachers.

The richness of the student teachers' descriptions of their flow experiences clearly showed that flow is a form of experience that they enjoy. Two major types of flow experience found in student teaching: enjoying the feeling that students have learned as a

result of the student teacher's efforts, and enjoying the experience of interacting with students. Some student teachers reported that they enjoyed their teaching to the extent that their students achieved the educational goals that they had planned. Their enjoyment came from sharing the success of their students' achievements. Others indicated that the process of interacting with students brought enjoyment into their teaching. Even though the task of managing students was challenging and sometimes nearly overwhelming, the process of interacting with students and sharing students' success led these student teachers to feel that they were adequately dealt with the demands of the task.

The results of transcribed interview data also supported Csikszentmihalyi's model and found that the five interrelated elements of the flow experience were identified by participants as affecting their capacity to experience flow. They all described five elements common to flow: clear-defined goal with focused feedback, a sense of enjoyment, properly balanced of levels of challenge and skill, concentration, and a feeling of some degree of control in the flow condition. The most important element conducive to flow that emerged from this study was receiving focused feedback in response to actions toward a clearly-defined goal. A closer examination of the factors found that these factors do interact and depend on each other. For example, when the participant's attention was centered on a limited stimulus field and the distractions of the environment were eliminated, participants felt in control and able to recognize what action needed to be taken. In turn, the proper balance between challenge and skill levels can affect the

perceived controllability of performance results, which also affects participants' level of enjoyment, and vice versa. Therefore, it is important to consider the interaction of factors to ensure that opportunities for occurrence of flow are optimized.

A comparison of the responses that Sarah and Kim reported with those of Amy shows that for Amy the theoretically expected pattern of optimal experience for flow is significantly confirmed (i.e., challenge level is slightly higher than skill level); for both Kim and Sarah, however, the skill level is slightly higher than the challenge level. Thus, the conditions under which they experienced flow differed. Sarah and Kim, who evidently preferred to feel in control, experienced flow only in situations in which their skill and challenge levels were evenly matched. Amy, on the other hand, experienced flow when the challenge level of a task slightly exceeded her skill level. These patterns suggest that Amy enjoyed her teaching more when she felt a relatively high level of challenge in her teaching. It appeared that Amy's experience represents a "textbook case" confirming Csikszentmihalyi's theory. Her interview transcript coincides with the results of her rating scale data. Among her transcribed responses coded within the flow quadrant, her willingness to be challenged was the most distinctive. Is it possible that the fact that Amy is the oldest and most professionally experienced participant in the study accounts for why she likes challenges more? The factors of seniority and past experience needs to be further researched.

Another finding for this study was that despite the quantitative-defined individual differences among the three flow-quadrant participants and despite the different patterns

of challenge-skill preferences, these participants associated attainment of flow with their efforts to exhibit flexibility and to review their teaching experiences in a constructive light. On the whole, they were relatively skillful in terms of adjusting their strategies to the current circumstances of teaching. Rather than viewing their problems as a collection of obstacles and difficulties, they believed that they can make a difference in the lives of their students and chose to conceptualize those dilemmas and challenges as learning experiences, or opportunities to construct a body of knowledge about teaching.

Finally, four distinctly different behavior patterns distinguished flow-quadrant from non-flow-quadrant student teachers: a) the keenly awareness of her own ability; b) willingness to seek help; c) welcome of challenge; and d) the ability to cope with stress. The content analyses of flow-quadrant teachers demonstrated higher reflection; i.e., they were more careful in terms of assessing both their own abilities and the difficulty of the challenges they encountered. This attitude regulated their actions and adjusted their own teaching behavior in order to achieve flow in their teaching. In terms of the interactions with their cooperating teachers, the flow-quadrant participants were willing to take the initiative to seek help from their cooperating teachers and thereby received constructive feedback. Instead of worrying about how they were doing, how they look from the outside, the flow-quadrant student teachers were willing to take risks and were motivated to learn continuously. It appears that flow-quadrant teachers were able to adapt to the personal and professional challenges of the teaching role, thereby felt more competent and more motivated.

Unfortunately, both the non-flow-quadrant student teachers appeared to hold relatively vague goals and was surrounded by stressful self-doubts. They were unable to either recognize the challenges within the teaching activities or to find ways of expressing their teaching skills in the school environment they found themselves in. They had a hard time honing the skills that would be conducive to flow. Thus, these non-flow-quadrant student teachers run the risk of limiting the level of intellectual tasks that will be enjoyable to them in the future.

Implications

The experience of flow in teaching was found to be important to maintaining motivation and investment in an activity, even when external rewards were limited. The importance attached to flow by the student teachers interviewed due to its positive influence on enjoyment of the experience clearly demonstrates the significance of this phenomenon. In summary, the results of the flow experiences of these student teachers suggested significant concern for understanding student teachers' individual needs, pointed to the important of cooperating teachers' role in facilitating flow experiences of their student teachers, and provided a basis for guidelines for establishing an optimal context for facilitating flow of student teachers. The following discussion presents some possible ways of applying the knowledge gained in this study.

Understanding Student Teachers' Individual Needs

The anxiety created by the need to identify special needs of students might lead us to speculate about whether enough emphasis is being placed in teacher preparation programs on the issue of identifying such needs. Some further experience with working with students with special needs on a one-on-one basis prior to the student-teaching semester seems needed. Only actual classroom observation can adequately prepare student teachers for dealing with the personalities of over 30 youngsters each day, and equip them for diagnosing individual and designing appropriate lessons for various learning problems. Student teachers often describe their job as "overwhelming." No matter how many textbooks student teachers have read, nothing can substitute for classroom observation and hands-on experience with students with special needs.

The finding suggests that the source of novices' anxiety may be their inadequate skills in the area of selecting particular strategies to meet the challenges of their field experiences. To provide appropriate educational experiences, teacher preparation programs must structure and sequence activities such that task demands are appropriate to the student teachers' levels of capacity and readiness. A key to designing such experiences may be the maintenance of a balance between support and challenges. Recall, for instance, that although all three flow-quadrant participants found student teaching experience to be a generally positive experience, flow was achieved under differing conditions. Flow experience for Sarah and Kim occurred when they felt that their skills were somewhat above the level necessary to meet current challenges. Flow experience

for Amy occurred when she perceived current challenges to be slightly above her skill level. Therefore, the components of an optimal context that would facilitate a novice's capacity to achieve flow may be different for each individual. For Sarah and Kim, the optimal context would encourage them to become aware of the growth-producing challenges already present in the routines of student teaching. For Amy, the optimal context would provide opportunities to stretch her capacity to meet challenges requiring personal growth beyond her current skill level.

But how can teacher educators provide opportunities for prospective teachers to cultivate the phenomenon of flow? The task is two-fold. First, self-observation needs to be encouraged so that the teacher will recognize the extent and degree to which flow experience has already been cultivated in his or her experience. Then, the prospective teachers can decide whether or not he or she wants deliberately to cultivate flow more fully. Secondly, if that individual comes to recognize flow and to value it, he or she may be receptive to analysis of his own personal strategies for replicating this experience. To encourage this approach, teacher preparation programs should evaluate the extent to which they are meeting needs identified by their graduates as they enter in their profession in order to provide initial and advanced training in the areas identified as needing further attention. Next, supervisors should be encouraged to hold pre-observation conferences in which student teachers identify areas of teaching skills about which he or she would like feedback. At the end of each unit taught by the student teacher, the student teacher should be encouraged to identify the levels of challenge and

skill involved and analyze what changes they need to make in order to maintain an optimal balance between their teaching skills and the demands of the task.

The Mentor's Role in Facilitating Flow Experience of Student Teachers

The most important element conducive to flow that emerged from this study was received focused feedback. It is especially noteworthy that the influence of a cooperating teacher in giving clear feedback was perceived by the participants as crucial both to improvement of their skills and to their capacity for enjoyment of their tasks.

To help ensure that a student teacher is sufficiently motivated, cooperating teachers should focus on providing clearly structured rules within the parameters of which a great deal of freedom and individual initiative is allowed. To be most effective in preparing student teachers, cooperating teachers should become acquainted with each student teacher's history of achieving flow state and work from this perspective when starting the mentoring process.

Optimal Context for Facilitating Flow of Student Teachers

The differing behaviors that distinguished flow-quadrant from non-flow-quadrant student teachers provide a wealth of information about how these student teachers were aided in or distracted from achieving flow. Awareness of the four overall behavioral patterns found among the participants in this study (see Table 3) could be employed in the intervention phase of the teacher preparation program. Likewise, encouraging student

teachers to monitor their own behavior in light of awareness of these patterns could help to elicit meaningful reflection on their student teaching experience. The following applications of findings of this study are presented as two possible examples of the range of practical applications. Each example focuses on a strategy for encouraging behaviors exhibited by flow-quadrant participants.

a) Encouraging Willingness to Seek Help

The degree to which cooperating teacher/student teacher relationships were shown to be instrumental in facilitating the flow experience of student teachers in this study suggests that a collegial environment is essential for encouraging student teachers to seek help from their cooperating teachers and examine their problems from various perspectives.

b) Encouraging Willingness to Take on Challenges

The context must support opportunities for recognizing the potential challenges inherent in activities in order to set the whole process of flow in motion. The boredom arising from engaging in “routine duties” reported by some participants suggests that these student teachers may be focusing on the rules and restraints represented by the school and its demands, such as bus duties and paper work, rather than on finding intrinsically motivating or flow-inducing experiences that may be available within such obligatory situations (Rathunde, 1988). Therefore, teacher education programs might

consider focusing on enabling student teachers to recognize challenges inherent within daily routines or to restructure these routines for the sake of providing a higher level of challenge in order to make the student teaching experience more enjoyable. The challenge-skill balance may be the most relevant area to focus on in order to help ensure that motivation will persist despite the difficulties the student teachers may encounter. Intervention can thus consist in restructuring tasks perceived as boring, so that a better balance between challenge and skill levels can be achieved.

Recommendations for Further Research

The present investigation applied flow theory to the student teacher population, thereby enhancing an understanding of the learning experience of novice teachers. Only a longitudinal study can reveal whether any of the currently observed differences among teachers will affect later teaching performance.

Research conducted on different samples, employing the same methodology, could add further knowledge to that gained through the present investigation. Some of the sampling methods that could be used include: a) undergraduate-level student teachers; and b) student teachers during their first placement.

The role of past experience may have had an influence on the degree to which the student teachers in this investigation were able to articulate their flow experiences, to reflect on their strategies for inducing flow, and to become conscious of factors that

might disrupt flow. Thus, further research is needed in order to determine the relationship between flow and experience level as a variable.

Finally, further examination of how each of the four behavior patterns contribute to flow might shed more light on ways to promote development of the student teachers over the course of their learning to teach. For instance, further research could be conducted to examine a possible association between the extent of meta-cognitive awareness and potential for achieving flow.

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APPENDIX

APPENDIX A

Perception of Challenge and Skill In Teaching

Directions: I am interested in differentiating among various levels of challenges and skills teachers may perceive in the course of their teaching. The following key will be used to rate levels of task challenge and your skill levels in respect to eight teaching tasks listed on the following page. Please turn to the next page and circle the numbers which seem best to describe how you feel.

Task Challenge

0 = Extremely low challenge level (boring)

3 = Unchallenging

5 = Slightly challenging

7 = Highly challenging

9 = Extremely high challenge level

Skill for the Activity

0 = Extremely low skilled (little knowledge or experience to guide me)

3 = Unskilled

5 = Slightly skilled

7 = Very skilled

9 = Extremely high skilled (professional knowledge + experience)

Teaching Tasks	Task Challenge (0-9)	Your Skill (0-9)
Routine duties	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
Managing Students	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
Working with Faculty	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
Working with Principal	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
Developing Curriculum	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
Organizing Materials	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
Assessing Students	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
Identifying Students with Special Needs	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9

Thanks For Your Participation

APPENDIX B

Interview Protocol

1. At what point in your career did you decide to pursue an advanced degree and to enter the teaching profession? What prompted this decision? Which qualities did you think would fit well with teaching as a line of work for you?
2. What is the most rewarding thing about teaching for you? Why?
3. What aspects of the environment do you feel you can control during student teaching? What areas are there over which you have little control?
4. What do you think you do especially well in teaching ? How did you develop this skill? What facilitated the enhancement of this skill?
5. When was the last time you felt: "This is the best day I've ever had " while you were student teaching? Please provide a detailed description of what happened and describe why this incident brought you this sense of satisfaction.
6. What was a "bad day" in your student teaching recently? Please provide a detailed description of what happened and what strategies you used in order to deal with it.
7. What is the main challenge you have encountered in your teaching? Please describe a teaching assignment and/or incident that you considered especially challenging or

demanding to you. Was it a predominantly emotional or intellectual challenging, or just generally stressful?

8. How have your teaching skills changed during the course of your student teaching?
What factors have facilitated the advancement of your skills?

9. Can you recall specific persons, events, or situations encountered either before or during your student teaching that have encouraged or motivated you to excel in your teaching? If so, please describe how they were influential.

10. How has teaching experience thus far affected your understanding of yourself, others, and/or life in general? Please provide a specific example to illustrate an insight you have gained about yourself, others, and/or life in general.

APPENDIX C

Factors Affecting Participants' Capacity for Flow Experience

1. Challenge and Skill Balance: 24
 - Restructure the challenge to make it more enjoyable: 19
 - Putting things into new perspectives: 5
2. Autotelic Experience: 17
 - Enjoy the experience: 14
 - Flying high: 3
3. Noncontradictory Demands and Clear Feedback: 84
 - High motivation to achieve goal: 23
 - Receive positive feedback from students: 20
 - Receive positive feedback from teacher: 17
 - Clear goal: 11
 - Freedom to try it all: 7
 - No outside pressure: 6
4. Centering of Attention on limited Attention: 32
 - Self-focused: 12
 - Positive attitude: 9
 - Blocking out the negativity: 11
5. Feeling of In Control of the Environment: 60
 - Willing to take risks: 13
 - Growing awareness of herself and ability: 12
 - Feel confident: 12
 - Feel good about herself: 10
 - Feel in control: 8
 - Willing to seek help from her teacher: 3
 - Access to decision-making: 2

APPENDIX D

Factors Associated with Flow

Sources: 1,7,9,10,11,12,13,15,16,19 were derived from Jackson, S. A. (1992); 8,17,18,20 were derived from Bullough (1989,1992); 3,5,6,14 were derived from Csikszentmihalyi (1988, 1990); and 2,4, were derived from Plihal (1982).

1. High motivation to achieve goal: 23
2. Receive positive feedback from students: 20
3. Restructure the challenge to make it more enjoyable: 19
4. Receive positive feedback from cooperating teacher: 17
5. Enjoy the experience: 14
6. Willing to take risks: 13
7. Self-focused: 12
8. Growing awareness of herself and ability: 12
9. Feel confident: 12
10. Clear goal: 11
11. Blocking out the negativity: 11
12. Feel good about herself: 10
13. Positive attitude: 9
14. Feel in control: 8
15. Freedom to try it all: 7
16. No outside pressure: 6
17. Putting things into new perspectives: 5
18. Willing to seek help from her teacher: 3
19. Flying high: 3
20. Access to decision-making: 2

APPENDIX E

Informed Consent of Participants of Investigative Projects: Rating scale/ Interview

Purposes

1. Describe the teaching activities that most contribute to cultivation of flow experience.
2. Examine the strategies which participants utilize in order to facilitate flow or to remediate non-flow experience.

Significance of the Study

The literature on reflective practice has indicated that it is possible to reflect on those aspects of teaching that have the greatest potential for providing intrinsic rewards, and to experiment with altering those factors until a personally meaningful enjoyable combination is discovered. Therefore, this descriptive and exploratory research focusing on such reflection can add to our understanding of rewards inherent in teaching and can provide information that suggests how the work of teaching might be made more enjoyable, meaningful, and productive.

Expectation For Participants

- For all participants:
Complete a rating scale twice with a one-week interval between the initial test and the re-test.
- For six selected participants:
Be interviewed for approximately one hour after completing the re-test.

Data Collection

The procedures for data collection involve both qualitative and quantitative methods . A combination of rating scale and interview will be used to reveal as much information as possible about how flow is experienced. Participants will individually complete a rating scale to reveal their perceived challenges as well as perceived skills in respect to 10 teaching activities. These participants will perform a retest within one week of the initial test. Furthermore, five volunteered participants will be needed to anticipate in face-to-face interviews with the investigator. The results from the scale as well as selected quotations from interviews will be analyzed to identify factors that give rise to flow experiences as well as factors that hinder them.

Extent of Anonymity

Taped or written materials will be kept strictly confidential at all times and will not be used in any other manner than described above. No names will be recorded, written, or in any way associated with documents.

Subject's Permission

By signing below you are indicating that you've read this document and willingly consent to participate. Your participation is greatly appreciated.

Your Signature

Date

Researcher's Signature

Date

APPENDIX F

Distribution of Tasks According to Csikszentmihalyi's Four Quadrants

Rank Order of Anxiety of Student Teachers (N=20)

Tasks	Responses	Rank
Identifying Special Needs of Students	9	1
Developing Curriculum	7	2
Assessing Students	6	3
Managing Students	5	4
Routine duties	4	5
Organizing Materials	2	6
Working with Faculties	1	7
Working with Principal	0	8

Rank Order of Apathy of Student Teachers N=20

Tasks	Responses	Rank
Working with Principal	8	1
Identifying Special Needs of Students	6	2
Organizing Materials	3	3
Working with Faculties	2	4
Developing Curriculum	2	4
Assessing Students	2	4
Routine duties	1	7
Managing Students	0	8

Rank Order of Boredom of Student Teachers N=20

Tasks	Responses	Rank
Routine duties	11	1
Working with Faculties	10	2
Organizing Materials	7	3
Working with Principal	5	4
Developing Curriculum	4	5
Assessing Students	4	5
Managing Students	3	7
Identifying Special Needs of Students	2	8

Rank Order of Flow of Student Teachers N=20

Tasks	Responses	Rank
Managing Students	12	1
Organizing Materials	8	2
Assessing Students	8	2
Developing Curriculum	7	4
Working with Faculties	6	5
Working with Principal	6	5
Routine duties	4	7
Identifying Special Needs of Students	3	8

APPENDIX G

Means of Challenges and Skills among Student Teachers

I.D.	Means of Challenges	Means of Skills
1	7.875	5.750
2	6.625	7.000
3	6.750	6.000
4	3.750	5.375
5	7.875	6.750
6	5.500	5.750
7	5.857	6.000
8	7.250	3.375
9	7.125	5.875
10	5.875	6.000
11	6.750	5.500
12	5.625	8.000
13	6.625	6.125
14	6.000	6.500
15	5.875	6.500
16	5.875	7.875
17	6.250	4.000
18	6.125	5.625
19	4.875	5.875
20	4.875	6.286

APPENDIX H

Responses of Self-Reports Fell into Each of Csikszentmihalyi's 4 Quadrants

	ANXIETY	APATHY	BOREDOM	FLOW
1	3	0	2	3
2	1	1	2	4
3	1	3	0	4
4	4	0	4	0
5	1	2	2	3
6	2	2	2	2
7	0	1	3	3
8	3	0	3	2
9	0	2	2	4
10	1	1	1	5
11	1	2	2	3
12	1	0	5	2
13	2	3	0	3
14	4	0	2	2
15	2	1	3	2
16	1	1	2	4
17	1	2	3	2
18	2	2	3	1
19	2	0	2	4
20	2	1	3	1
Total	34	24	46	54
%	21.52%	15.19%	29.11%	34.18%

Vita

Pei-Fen Chang was born on April 26, 1967 in Taiwan. She received her M.A. degree in Counseling from the College of Education at Virginia Tech in 1992. In the spring of 1992, she fulfilled an internship in guidance counselor at elementary schools in Blacksburg and Roanoke. This experience provided first-hand knowledge of the United States public school system.

On August 1992, she entered the Teaching and Learning program in the College of Education at Virginia Tech to pursue her Ph.D. During the second year of her doctoral studies, she became interested in the application of Csikszentmihalyi's theory of flow to teaching. Her work in counseling and graduate coursework, including a variety of statistics classes, provided experience and knowledge that established a good foundation for conducting this study. Upon completion of her Ph.D degree, Pei-Fen Chang plans to continue work toward encouraging reflection upon teaching within teacher-preparation programs.

Pei - Fen Chang