TEACHERS' OPINIONS ABOUT THE ROLES OF SUBJECT SPECIALISTS AND GENERALIST INSTRUCTORS FOR EARLY ADOLESCENTS

By

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ABSTRACT

This study is essentially exploratory in nature due to a paucity of research concerning teacher opinions about subject specialists and generalist instructors for early adolescents.

The purpose of the study is to examine teachers' expressed preferences for the use of subject specialists at upper elementary school levels and Grade 9 and the relevant factors associated with their opinions.

Data were obtained through the use of a survey questionnaire and analyzed by employing descriptive and inferential statistics.

The results of the study revealed some significant diversities along with some similarities in the opinions of secondary participants and their elementary counterparts. The results may suggest a need for increased use of subject specialists at the upper elementary level.

CHAPTER 1

INTRODUCTION

One classroom-one teacher is the tradition in elementary schools in Canada. Nowadays specialist teaching occurs in French lessons. In some schools, on such occasions that a generalist teacher may feel less comfortable with a certain subject like music or physical education, a trade-off can be made with another teacher who is in a better position to teach it. However, a generalist teacher is still required to teach the majority of the subjects in the elementary school curriculum. The teaching task and schedule are demanding (Stevenson & Stigler, 1992; Fullan, 1993).

In reviewing the literature on the rationale underlying classroom organization for instruction, it appears that it is not a new issue. The debate about whether the self-contained classroom structure has advantages over either departmentalized or teamed arrangements started at the beginning of the century (Goodlad, 1960). There are pros and cons, leaving many

questions still unanswered. For example, does generalist teaching benefit children throughout the elementary schooling? Are generalists overworked? Is it realistic to expect teachers to be versatile not only in the knowledge of all the subjects they are required to teach, but also in the teaching methods? Cross-cultural research by Stevenson (1992) and his team researchers reveals a learning gap exists between American elementary school students and Asian students. One of their important findings which Fullan (1993) recognizes to be "prominent" is that Asian teachers spend much less time in classroom teaching (with larger class size) but stay longer at school than American teachers. This finding challenges the concept of generalist teaching and may shed light on some major problems Canadian and American elementary school teachers are confronting.

Statement of the Problem

The internal arrangements between the teachers aforementioned suggest that teachers may not be proficient at teaching all the subjects they are required to teach. Miller (1992) contends that it is humanly impossible for one to be strong in all school subjects and to keep up his or her professional growth in both content and pedagogy in

these fields. However, boards of education in Ontario may still require teachers to teach subjects in which they have little academic background (Peters, 1993).

An alarming figure revealed by a 1989 provincial review of Grade 8 mathematics shows that "60 percent of mathematics teachers had not taken any mathematics courses during their undergraduate studies" (Peters, 1993, p. 77). Without adequate understanding of the concepts and content of a subject matter, teachers may be unable to appraise critically the adequacy, accuracy and salience of the text (Hashweh, 1985, 1987; Wilson, 1988). Moreover, teachers' lack of content knowledge can affect the style of instruction (Grossman, Wilson & Shulman, 1989). Ontario students in the 1988 International Assessment of Educational Progress (IAEP) scored lower in mathematics than those in Quebec, British Columbia, and New Brunswick, and lower in science than British Columbia students (Lapointe, Mead, & Phillips, 1989).

The 1991 IAEP found Ontario 13-year-olds knew less mathematics than students in virtually every other province, and less science than their peers in Alberta, British Columbia, Quebec, Saskatchewan, Nova Scotia, and Manitoba. Of 9-year-olds in the four participating provinces of British Columbia, Ontario, Quebec, and New

Brunswick, those in Ontario knew the least mathematics and science (Lapointe, Askew, & Mead, 1992). Although there are many factors that contribute to students' academic achievement, generalist teaching may be one of the contributors.

Having recognized that "the United States is one of the few countries in the world that continues to pretend--despite substantial evidence to the contrary--that elementary school teachers are able to teach all subjects equally well" (p.64), the National Research Council (1989) declares, "the United States must create a tradition of elementary school specialists to teach mathematics and science" (p.65). Because the similar practice is under way in most elementary schools in Canada, it is important for educators to examine this problem inherent in implementing the curriculum standards in elementary schools, especially at the upper levels. Hargreaves (1990) calls for subject-specialists in Ontario elementary schools. Other scholars particularly emphasize the use of specialists in teaching mathematics and science (Dossey, 1984; Miller, 1992; Abell, 1990; Hounshell, 1987). Yet, so far no study has been conducted to examine Canadian teachers' opinions regarding this issue. The problem for this study may be divided into three parts:

(1) whether or not teachers favor subject specialists in teaching grades 6, 7 and 8 in elementary schools, and in teaching grade 9, especially in math and science;

(2) how teachers view the level of preparedness of teachers of grades 6, 7 and 8 for teaching the subjects required by the elementary school curriculum;

(3) at which grade level should subject specialists preferably be first provided.

Purpose and Significance of the Study

The purpose of this study is to examine: (a) teacher opinions regarding the desirability of flexibility in using subject specialists at elementary school level and Grade 9; (b) the relevant factors that are associated with teacher opinions about subject specialists in teaching early adolescents.

The significance of the study relates to its relevance to the following issues:

1. There is a paucity of research in Canada concerning teacher opinions about subject specialists in teaching early adolescents;

2. Teacher opinions about generalists/specialists in teaching early adolescents should help identify teachers' needs as well as those of students. This may provide a

basis for continuing research on practices in elementary schools and Grade 9 in Ontario secondary schools;

3. The results may have implications for educational policy makers.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Points at Issue

The examination of classroom organization for instruction has continued since the beginning of the century (Goodlad, 1960). A chief point at issue has been whether or not self-contained classes have advantages over either departmentalized or teamed classes, in terms of student achievement and social adjustment.

The mid-1950s saw varieties of elementary school team teaching develop in response to the perception that children in the day-long custody of one teacher could benefit socially, psychologically, academically and personally (Anderson, 1989). Concern that apparently few teachers had considerable competence in more than one or two areas of knowledge, experimental programs appeared, such as the East Brunswick program of teacher specialization which was set up in the early 1960s (Anderson, 1962). Lamme's (1976) brief summary of her review of the literature concerning studies of academic achievement shows that results were inconclusive for either

self-contained classes or departmentalized classes. She found some studies failed to find differences in achievement between pupils in self-contained classes and pupils in departmentalized classes, as did the studies regarding social adjustment on several measures of pupils' feelings.

Arguments Favoring the Generalist Approach

Proponents of the self-contained classroom organization claim that it lends itself to greater flexibility in time allotments and in subject area adjustments. It enables teachers to integrate reading and language arts with other content areas more easily (Smith & Johnson, 1980; Sucher, Manning, & Manning, 1980; Ward as cited in Slavin, 1988). Teachers in self-contained classrooms have greater opportunities to individualize so that students who need additional time to learn a concept can move ahead (Gibb & Matala, 1962; Jarvis, 1967). Culyer (1984) favors the self-contained classroom organization at least through grade six and preferably through grade eight. He claims that such organization is especially appropriate for hyperactive, insecure, and slow learners because "they tend to function best with one teacher" (p.419).

Elkind (1988) maintains that elementary school children do not have a "fully consolidated sense of self" (p. 13). It is therefore important for teachers to know their students as "whole persons" and to reflect that sense of "wholeness" back to the students. Generalist teaching minimizes the number of teachers for children to interact with, giving them the sense of security. All in all, a generalist teacher who knows each student's strengths, weaknesses, and personality traits can better accommodate students' individual needs (Elkind, 1988). Also it has been claimed that in a self-contained classroom more influence is exerted by the teacher on the reading habits of children (Lamme, 1976).

Arguments against the Generalist Approach

Opponents of generalist teaching have advanced several arguments. Anderson (1962) cites Tanner's description of a typical American elementary school teacher as a "jack of all subjects and the master of none". Anderson contends that individualization is easier for the specialist teacher rather than the generalist teacher because a thorough understanding of a subject maximizes the likelihood of excellent instruction. He argues that specialist teachers can better conceive goals for their areas and read signs

that tell of a child's misunderstanding. These signs might be misread by the generalist teacher with less knowledge of the specific subject matter. He claims that "whatever the areas of knowledge to be integrated, the teacher who has considerable competence in one or both disciplines will in all likelihood do a better job than the teacher who is master of neither" (p. 259). The working document of Ontario Ministry of Education *The Common Curriculum (1993)* has gone even further by outlining a non-subject-discipline approach from grades 1 to 9 (Raphael, 1993).

In his critique on *the Common Curriculum (1993)*, MacLeod (1993) claims that integration of subjects is good only for children in the early years of schooling. "Relationships and connections are made almost unconsciously but it is not truly 'integrated' in the sense that causes and effects are sorted out from random chance (the difference between knowing and understanding)" (p. 17). However, when the child enters the period of early adolescence, it is time to start some systematic learning. What they really need is, MacLeod continues, "something that the traditional subjects are uniquely able to provide--a series of conceptual frameworks with which to organize their hard drive and to serve as the basic tools for recognizing the relationships and connections ..."(p. 17).

Two case studies in elementary science by Schoencberger and Russell (1986) reveal that "integration" is interpreted by teachers, particularly in the lower grades, as occasions when science-related topics emerge in other subject areas. They argue "saying that science is taught by integration may disguise the reality that many children study very little science as they progress through elementary school" (p. 535).

Findings from other studies challenge the assumption that self-contained classrooms provide teachers with greater flexibility to adjust subjects and to allot time. For example, in the comparative study of educational practice in the United States, Japan, Taiwan and China, Stevenson and Stigler (1992) found that "American teachers often omit some topics" (p. 140) to avoid repetition. Different topics are omitted by different teachers, making the children's later teachers unsure what has been taught and what has not.

The time spent in the 5th-grade mathematics classes in the study by Stigler, Lee and Stevenson (1987) indicates that the individual teacher's interests play a very strong role in determining the curriculum in American classrooms. They found that three teachers in Minneapolis classrooms were never observed to teach mathematics, and in about a

third of the classrooms less than 10% of the classroom time was devoted to mathematics. Early investigation by Ackerlund (1959) reported self-contained classroom teachers emphasize or de-emphasize certain subjects, depending on their likes and dislikes. Grossman, Wilson and Shulman (1989) also expressed their concern in a recent article that some teachers try to avoid teaching material they don't know well. Hounshell (1987) found that "there is a better than fifty-fifty chance that this teacher neither likes science nor likes teaching it" (p. 20). Compared with other subjects, science suffers most (Abell, 1990). Ten percent of the total instructional time available is spent on K-6 science, while language arts musters 34%, math 20% and social studies 12% of the instructional day (Goodlad, 1984). Almost 90% of the elementary teachers in Weiss' (1987) study reported covering over 75% of the textbook in science.

It has been observed in a column entitled "Learning 88" that some teachers employed rather unusual tactics in response to the growing number of subjects they were required to cover. For example, one teacher let students use the computer during free time in the name of computer literacy unit. Another planned to start at the back of the textbook because "fractions and geometry are always at the

end of the math book. Most classes never have time to get to the end, so most kids don't know them" (author of Learning 88, 1988, p. 74).

Ackerlund (1959) contends that there is no evidence that adjustment to several different teaching personalities simultaneously is harmful to children. Elkind (1988) provides information relevant to Culyer's (1984) concern that time is wasted during students' physical transition from one class to another if they are taught by specialists: "In Japan, it is the teachers, not the students, who rotate. Even in high schools, children have their own rooms" (p. 13). This is also the case in all primary, middle and high schools in China.

Ramey (1992) studied sixth grade students' opinions and perceptions of team teaching. She found students overwhelmingly preferred being on teams, though some students felt a loss of comfort changing from a self-contained class to a team teaching situation. The dominant theme in their support was the anticipation of boredom with one teacher, and their preadolescent need to socialize. Related to the fear of boredom with one teacher, was another fear that a few students could be forced to suffer through an entire school year with a teacher they did not like. This finding is consistent with Anderson's (1962)

argument about unfairness for a child to be imposed upon by a single adult personality, a single set of values and a single way of thinking because a child may not identify with a certain teacher for one reason or another. Ramey points out that students' feelings and opinions are there and need to be considered though the controversy cannot be settled by the evidence reported in one study.

Heather's argument (as cited in Bolvin, 1982) against generalist teaching that "a majority of teachers did not feel adequately prepared, either in knowledge of subject matter or of teaching methods, to teach all of the major subjects" (p.561) is supported by research. Ackerlund (1959) reported the result of his study in which only four of 260 teachers stated they were well prepared. Only 12% of Weiss' (1987) K-6 teachers considered themselves master science teachers. Farber and Miller (1981) and McLanghlin, Pfeifer, Swanson-Owens and Yee (1986) reported teachers are expected to teach courses outside their particular skill area. Interestingly, Ackerlund's (1959) survey shows that the number of teachers who opposed the self-contained classes increased as they taught higher grades. "In grades K-2, 51 teachers favored the self-contained classroom while 33 opposes it. In grade 3-4, 35 favored it and 40 opposed it. In grade 5-6, 17 favored it as against 37 who opposed

it" (p. 284). This suggests that the acceptance of self-contained classroom organization diminishes at upper grade levels.

Overall, for many students, specialist teaching "could mean greater achievement, more profound learning, greater interest in learning and better social and emotional development" (Anderson, 1962, p. 260); for teachers, "they do more than merely master appropriate content and gather relevant bodies of technical expertise" (Hargreaves, 1988, p. 222).

In a review of the literature relative to the self-contained and departmentalized elementary organizational structures, Smith, Drees and Welch (1989) conclude that "research does not provide evidence demonstrating one structure is more conducive to improving student achievement than the other" (p. 11) and that "attempts to improve or evaluate instruction must therefore be redirected toward other factors" (p. 16).

Factors Related to Instructional Competence

Stevenson and Stigler (1992) began their research on "other factors" as early as 1980. Their work, over a decade's cross-cultural research on elementary school students' achievements, is considered a landmark study. The book, *The Learning Gap*, numerous papers and scientific studies have resulted from their efforts (Freedman, 1993). Their research reveals that an achievement gap exists between American and Asian students (Stevenson & Stigler, 1992). In spring 1990, they tested several hundred 5th graders in Minneapolis (the United States), Taipei (Taiwan), and Sendai (Japan) in the same schools they visited in 1980 and 1984. The results reveal:

> Asian superiority in mathematics was evident in 1980 and continued in 1984. The American 5th graders answered only one more question correctly in 1990 than their counterparts had answered 10 years earlier. .
>
> In reading, the results were also dismal. In 1980, American students out performed their Japanese peers, but Chinese students received the highest scores. By 1990, Japanese students showed a marked gain in their

scores; American students had slipped to third place. (p. 65)

Stevenson and Stigler have found that Asian teachers spend much less time in classroom teaching (with larger class size) than American teachers. However, they spend longer hours at school interacting, preparing, working with individual students. "It is inconceivable that American teachers, by themselves, would be able to organize lively, vivid, coherent lessons under a regimen that requires them to teach hour after hour every day through the school year" (Stevenson & Stigler, 1992, p. 207).

Here, a further interpretation of the term "regimen" seems superfluous. It is apparent that to keep teachers teaching in their classrooms for longer hours is the essence of generalist teaching. American teachers complained that "they are overworked" (Stevenson, 1993, p. 64). As a matter of fact, the literature is replete with reports and research findings that highlight the problems elementary school teachers encounter. The problems of work overload, inadequate backgrounds, and isolation are the most significant, and therefore worth reviewing.

Problem of Work Overload

Work overload includes quantitative and qualitative components (Cooper & Marshall, 1978; French & Caplan, 1973). "Quantitative work overload involves too many demands and too little time in which to meet them adequately. Qualitative overload refers to job complexity; work that is perceived as too difficult to complete satisfactorily" (Byrne, 1992, p. 7).

Quantitative overload. The Forum of NCTE Committee (1977) acknowledges the broad and diverse responsibilities of elementary school teachers. They are required "to teach skillfully the wide variety of subject areas of the elementary school curriculum" and need to respond "in a positive and sensitive manner to the needs of children" (p. 832-833).

A survey by MacPhail-Wilcox and Dreyden (1993) reveals that 43.6% of the respondents (elementary school teachers) are assigned to teach 5 to 6 subjects per day and 41.7% prepare between 5 and 6 lesson plans per day. Fechak (1988) complained about the growing number of subjects. He said he was expected to teach seventeen subjects during the remaining time after teaching 60-minute reading and 45-minute math each school day: English, geography, U.S.

history, spelling, science, handwriting, health and hygiene, civics, state history, computer literacy, drug education, patriotism, citizenship and flag etiquette, highway safety and traffic regulations, fire safety, legal holidays, humane treatment of animals, conservation, and career education. He found his situation was not unique in his district.

Wallace and Londen (1992) state that the multiple demands of the curriculum pressed heavily on teachers. For instance, Johanna, a teacher participating in the study, had just started her new role as a science teacher besides teaching art, music, and drama. Malcolm, another teacher, was trying to include all the increasing demands of curriculum in a school day: adding 40-minutes of French, daily physical education, more outdoor education, computer studies and environmental studies. In a study of practice in primary schools, Desforges and Cockburn (1987) describe an ever-increasing list of objects for teachers to attend to as a "curriculum kilolitre" poured into a classroom "pint pot". Consequently, "the only manageable response to this is a once-over-lightly treatment of basic facts and routines. There is simply no time for serious, thoughtful treatment" (p. 144) in teaching mathematics.

The decision of elementary school teachers in Toronto to strike in September, 1987 in support of their claim for a guaranteed minimum of 180 minutes per week of preparation time (Hargreaves, 1992) provides evidence that teachers believed they needed more time for lesson construction and related duties. In Western school systems, it is unusual to allow elementary school teachers time away from their classes for guaranteed preparation (Hargreaves, 1992). In contrast, Beijing teachers generally teach no more than three hours a day. For Japanese teachers teaching twenty-three hours for a six-day week is regulated by the law (Stevenson & Stigler, 1992). The schedules for Chinese and Japanese teachers "allow them to enter the classroom with a level of energy and a degree of preparation seldom possible for American teachers" (Stevenson, 1993, p. 65).

The elementary school teacher's role is defined ever more widely (Hargreaves & Fullan, 1991; Stevenson, 1993). "Teaching is not what it was. Expectations have intensified. Obligations have become more diffuse" (Hargreaves & Fullan, 1991, p. 17). More "social work" responsibilities are attached to teaching (Hargreaves & Fullan, 1991; Reed & McCoy, 1989). More needs are to be met because of the changing composition of teachers' classes (Hargreaves & Fullan, 1991). In addition,

"accountability to parents and administrators has increased these senses of pressure among teachers" (Hargreaves & Fullan, 1991, p. 17).

Stevenson (1993) describes American teachers as parent-substitutes, disciplinarians, psychotherapists, and guidance counselors. Comparative studies of the teacher's role have indicated that in France "the teacher's role is defined tightly and clearly as being specifically concerned with academic learning and performance in school" (Hargreaves, 1991, p. 13). "In Asia, the teachers' primary function is to teach effectively and produce high levels of achievement among their students. Other functions are the responsibility of parents or professionals outside the school setting" (Stevenson, 1993, p. 65).

Qualitative overload. Qualitative overload, as aforementioned, is related to job complexity and difficulty in satisfactory needs fulfillment. The mainstreaming of special education students into regular classes has changed class composition, resulting in complexity of programming and preparation (Hargreaves & Fullan, 1991). Research on the uses and perceptions of preparation time conducted by Hargreaves (1992) and his colleagues after the advent of a guaranteed preparation time in Ontario elementary schools

reported findings that provide insight into the issue of job complexity and unmanageability. They found positive consequences of a guaranteed minimum of 120-minute preparation time per week in reducing stress and improving the quality of teaching. Paradoxically, however, there appeared to be some negative aspects that worried some teachers. When he or she was away from the classroom for preparation, who would be the best choice to come to attend to the class? For one thing, to have another teacher come over to teach would lead to an exposure of differences and weaknesses which "teachers preferred to keep suppressed" (p. 101); for another, if the expertise of the covering teacher was weak, the quality of instruction appeared to be undermined rather than enhanced. Sometimes it was not easy for the covering teacher to cover such self-contained areas, while sometimes problems arose with selecting a subject to be covered. Ironically, innovations are not making the teacher's job more manageable. On the contrary, they exacerbate the overload problem (Fullan & Hargreaves, 1991).

The research on teacher morale suggests that workload affects teacher behavior and student achievement. Smith and the NCTE Task Force (1986) found that teaching load influences teacher morale and has a negative effect on the

ability of teachers to respond to individual students. This, in turn, affects student achievement. Coates and Thoresen (1976) reported that teaching overload may be associated with lowered student achievement levels.

Adequacy of Teacher Preparation

Stevenson (1993) and Schoeneberger and Russell (1986) report that elementary teachers may not have adequate backgrounds in some basic fields. "Teachers and teacher educators do not know enough about subject matter, ." (Fullan, 1993, p. 108).

Research and interviews with a variety of teachers and other educators in Ontario reveal that "teachers are not required to have an academic background in the subjects they teach, even for senior grades" (Peters, 1993, p.77). The results of the study by Lawrenz (1986) show that major misconceptions of physical science concepts existed on the exam by the study teachers who had strong educational backgrounds (e.g. 47% master's degree). In the study report by Wallace and Londen (1992), teacher's articulation of subject knowledge deficiency reveals this concern: ".. teaching science is difficult because it requires a pattern of practice based on knowledge that most elementary teachers do not have, including particular kinds of

pedagogical knowledge and content knowledge of science" (p. 518).

Twillie and Petry (1990) have found that some students often know more about how to use the computer than teachers do. This frustrates teachers with little or no preparation because they cannot use such positive tools as effectively. The weaknesses in teaching mathematics displayed in the comparative study by Stigler, Lee and Stevenson (1987) indicates "Chinese and Japanese teachers appear to be better prepared for teaching mathematics and endow their classes with a liveliness and variety that typically are missing in American elementary school classes .." (p. 1284).

Recent research has demonstrated that many novice teachers have limited conceptual understanding of the content they are preparing to teach (Peck & Connell, 1991; Neale & Smith, 1989; Smith, 1987). Brophy and Good (1986) report that "research in mathematics and science instruction has shown many concepts are counterintuitive or otherwise difficult to grasp and retain even for teachers and other adults" (p. 369). As a result, teachers with limited backgrounds may teach incorrect content or fail to recognize and correct their students' misunderstandings. Clearly, the effectiveness of lessons will be affected by

teachers' interest in and knowledge about the content being taught.

It was also suggested by Tollefson, Hsia and Townsend (1991) and Tollefson, Melvin and Thippavajjala (1990) that it will be necessary for teachers to try a wide variety of instructional strategies in working with low-achieving students in order to provide them with more effective help. It appears that teachers' expression of a willingness to help as well as their sympathy towards these students' difficulties may not be very beneficial in improving their school achievement. Only when teachers themselves conceptually understand the content are they able to develop conceptual understanding of the subject matter in students (Stoddart, Connell, Stofflett & Peck, 1993). This is because teacher's personal understanding of the subject matter exerts a powerful influence on their instructional practice (Grossman, 1989; Shulman, 1986).

In fact, Asian teachers generally, as Stevenson and Stigler (1992) have found, do not have as many years of formal education as American teachers do (i.e. none of them had received more than a bachelor's degree). But their teachers-to-be are more likely than Americans to major in literature and mathematics rather than major in education, and take many courses in teaching methods. What is

important is that their training continues in their job after graduation from college.

Historically it has been argued that "teaching does not require as much preparation as some professions, crafts, or other skilled fields. Teaching is relatively high on general schooling and somewhat low on specialized schooling" (Lortie, 1975, p. 60). Fullan (1993) points out: "So far Western societies have not been able to bring themselves to take the challenge of reforming teacher education seriously" (p.134). He quotes Stevenson and Stigler's as his emphasis: "No other change is as basic as this one" (p.134).

The problems of work overload and inadequate preparation along with the needs of early adolescence provide apparent reasons for calls for specialists in certain subject areas in elementary schools. Hargreaves (1990) acknowledges,

> At a time when knowledge is becoming more complicated and differentiated and can no longer be coped with by a single generalist teacher, calls for greater subject-specialist expertise in elementary teaching form an important part of the international agenda to improve the quality of teaching in our elementary schools. (p. 36)

Abell (1990) holds that employing science specialists would alleviate the generalist teacher's workload; furthermore, confident and knowledgeable specialists may exert a positive influence on students.

Problem of Isolation

"Teachers are cut off from their colleagues because they spend most of the day in their own classrooms" (Feiman-Nemser & Floden, 1986, p. 516). They rarely have enough opportunity and encouragement to work together. The problem of isolation is deep-seated: "Architecture often supports it. The timetable reinforces it. Overload sustains it. History legitimates it. We therefore believe that cracking the walls of privatism is one of the basic issues worth fighting for" (Hargreaves & Fullan, 1991, p. 20).

The physical arrangement of schools influences in part the opportunities to learn from other teachers (Stevenson & Stigler, 1992, p. 160). Typically, elementary teachers have their desks and teaching materials in their own classroom. The space available to them is either "a cramped room that often houses supplies and the school's duplicating facilities along with a few chairs and a coffee machine" (p. 161) or a staff room that is claimed to be

typically a place to rest rather than to work in (Stevenson, 1992). This physical isolation conveys the message that teachers ought to deal with their problems on their own, thus reinforcing the norm of individualism. As a consequence, "the uncertainties of teaching are exacerbated by the fact that teachers cannot easily turn to one another for help and support" (Feiman-Nemser & Floden, 1986, p. 517). Stevenson and Stigler (1992) found that Japanese and Chinese teachers, in contrast, have a large room to share as a teachers' room, where each one is assigned a desk and spends the time away from the class preparing lessons, correcting papers and consulting with colleagues. The schedule and physical arrangement foster more frequent interaction among teachers. Many Chinese and Japanese teachers consider "the most important contributions to their professional development come from interaction with other teachers" (p. 173). As Fullan (1993) notes,

> It is not simply time available that counts here, but the professional norms governing how that time is used: "time is freed up for teachers to meet and work together on a daily basis, to prepare lessons for the next day, to work with individual children and to attend staff meetings." (p. 133-134)

Focus on Early Adolescents

Early adolescence refers to the period between ages of approximately ten and fourteen (Eichorn, 1966). During this period in addition to rapid physical growth, very significant changes in biological, social, emotional, and intellectual development take place (Skelton, 1991).

The physical change is characterized by increases in height, weight, muscular strength, and voice change (Brazee, 1982; Skelton, 1991). Sexual maturation appears (Skelton, 1991). In addition to physical change, there are important mental changes including growth in the capacity for abstract thinking (Brazee, 1982). Students have a brain growth spurt during the age 10 to 12, and reach a brain growth plateau during ages 12 to 14 (Patterson, 1983).

> Puberty, among other changes, affects their bodies and minds, the way they think and behave. Their interests and reactions undergo substantial revision. They seek greater independence from adults; they test the limits of adult authority; they explore; they argue; they challenge rules. (Hechinger, 1993, p. 522)

These physical and mental characteristics of early adolescents show that they are different from younger and older youngsters (Brazee, 1982) and have significant implications for educators (Skelton, 1991). Entwisle and Hayduk (1988) report that "by high school, a pupil's academic self-image, level of achievement, study habits and general receptiveness to schooling are already well established" (p. 147).

Debaryshe, Patterson and Capaldi (1993) focused on seventh graders. The results of their study provide longitudinal evidence that academic engagement in Grade 7 has a positive influence on performance in subsequent years. This is supported by a study by Lounsbury (1988) who focused on the sixth grade. After an analysis of three kinds of sixth grade organization (i.e., self-contained, departmentalized and teamed), he concluded,

> . a purely self-contained, elementary oriented sixth grade is no more appropriate for <u>emerging</u> adolescents. The social and exploratory needs of early adolescents are not likely to be met adequately when only a single teacher directs the entire day save for, perhaps, art and music. Ten and eleven year olds are emerging from childhood and are seeking understandings and experiences beyond the limited scope of the usual

self-contained classroom. Their need for exploratory experiences is impelling. While a single teacher may be able to provide much of the variety needed there has to be a context and support for so doing that is not normally found in an elementary school. (p. 20-21)

Relevance of Teacher Opinions

"The teaching staff represent a most powerful influence on program development, therefore it is essential that their opinions be ascertained and analyzed in order to make wise decisions" (National Study of School Evaluation, 1981).

At a time when teachers are encouraged to be involved in the reform of education and the development of school policies which affect their work, the investigation of teachers' opinions will provide teachers with a vehicle of communication between teachers and policy makers to identify problems and facilitate problem-solving. On the other hand, it serves as a tool to prevent policy makers from being bureaucratic in decision-making.

Teachers are practitioners who are in the best position to be reflective and articulate about the

organization for instruction in relation to the school outcomes as well as their commitment. The assessment of teacher opinions about this issue will provide valuable data for policy makers to guide decision making fundamental to education for early adolescents, instruction improvement, teaching load, and teachers' professional development. Educational policy makers do have the responsibility for and capability of formulating policies that are identified with the needs of teachers--those who can make the difference and the needs of students.

An opinion has been defined by Thurstone and Chave (1929) as "a verbal expression of attitude ...." (p. 129). Rokeach (1968) distinguishes the concept from that of Thurstone and Chave. He considers an opinion "as a possible expression of a belief or value as well as an attitude, . . a possible manifestation of an attitude of altogether different content" (p. 125). In general, the terms "opinion" and "attitude" have been used interchangeably. However, Anastasi (1968) notes that when distinctions have been made, they "are neither consistent nor logically defensible" (p.480).

Positive opinions in this study refers to expressed views in favor of specialists in teaching students.

Background is defined as current and past experience related to teachers' teaching career and degree held.

Workload is defined as all the time and energy teachers must expend in fulfilling duties and responsibilities relating directly or indirectly to the task of teaching.

Role of teacher refers to teacher behavior in and outside the classroom, including teaching as well as social and affective work with students.

Teacher preparedness, including the pre- and in-service periods, is defined to include both content and pedagogical knowledge of the subjects a teacher is required to teach.

Preference for the grade level refers to the choice of the grade level teachers believe necessitates the use of a relevant subject specialist.

CHAPTER 3

DESIGN OF THE STUDY

Because no study of teacher opinions regarding generalists/specialists in teaching early adolescents is reported in the literature, this study will essentially be exploratory in nature. It follows that formal directional hypotheses are not warranted for this investigation. It must be taken into consideration that "the validity of questionnaire data depends in a crucial way on the ability and willingness of the respondents to provide the information requested" (Mouly, 1978, p. 190).

Expectations

Teaching is a demanding profession. Early adolescents are moving out of childhood and taking the first step toward adolescence. Their intellectual development, characterized by their capability of functioning at higher

cognitive levels along with all other aspects of growth, requires teachers who have sufficient pedagogical and content knowledge to create a learning environment conducive to learning.

Teachers need to do more than just present content from the textbook and manage a class. Stewart (1993) summarized teaching as involving intellectual acts and strategic acts. The former acts constitute the core of teaching that criss-cross and overlap in various combinations. If the strategic acts alone are performed, this would not constitute teaching because both types of acts are indispensable to it.

The complexity of teaching requires teachers capable of motivating students and providing thorough contemporary information in their subjects. This will, in return, maximize the likelihood that learning occurs in the classrooms. It is apparent that students may benefit more from the use of subject specialists than from a single generalist. This is recognized in the organization of the high school but only minimally in the upper elementary grades, and raises the issue of subject-specialists in grades 6, 7 and 8. In the fields of mathematics and science particularly, concern has been expressed about the

quality of education in schools (Raphael, 1993; MacLeod, 1993; Freedman, 1993; Alberta Chamber of Resources, 1992).

Examining opinions of those elementary and secondary teachers whose approaches are distinctive may help us understand perceptions of early adolescents' needs. In addition, teachers' needs impacting quality of education may be more apparent along with preferred means of meeting them.

In this study, the research questions are:

(1) secondary teachers will be more positive than elementary teachers regarding specialists teaching early adolescents;

(2) teacher opinions about subject specialists will relate to their experience and training;

(3) opinions about the level of teacher preparedness for teaching the elementary school curriculum for the grades 6, 7 and 8 will differ between elementary teachers and secondary teachers;

(4) preference for the grade level at which subject specialists should preferably be first provided will differ between elementary teachers and secondary teachers.

Methodology

Subjects and Data Collection

A total of 145 teachers from 14 public elementary schools and 5 high schools in Thunder Bay voluntarily provided information for this study by completing a questionnaire regarding opinions about subject specialists in teaching early adolescents. The participants consisted of 55 elementary school teachers who have had experience teaching grades 6 to 8, and 90 secondary school teachers who had taught grade 9 either during the current year or before. Detailed demographic characteristics are presented in Table 1.

Two hundred and seventy-seven questionnaires with covering letters enclosed (see Appendix A & B) were distributed in 19 public schools in Thunder Bay by the investigator in the middle of June. The teachers were allowed to complete the questionnaires either at home or at school. As the school term was drawing to a close at that time, approximately one week was available for them to complete the questionnaire. Although it was a hectic period, teachers appeared enthusiastic and cooperative. Follow-up notes were distributed in cooperating schools three days after the questionnaires were distributed

expressing thanks to those who had completed the questionnaire and requesting a reply from those who had not. By the end of the term, the investigator had collected 148 questionnaires, including three judged to be unusable, yielding a 52% response rate. Caution must be exercised in generalizing results because of the voluntary nature of this convenience sample.

Table 1.

Demographic Characteristics of Participants

	Elementary		Secondary	
	n	%	n	%
Grade now teaching				
JK-5	9	16.4		
6-8	39	70.9		
9-10			57	63.3
11-OAC			27	30.0
Grade taught past				
JK-5	5	9.1		
6-9	49	89.1		
6-10			86	95.6
11-OAC			3	3.3
Subjects				
math, science included	45	81.8	46	51.1
math, science excluded	5	9.1	39	43.3

(Table continues)

Table 1. (continued)

	Elementary		Secondary	
	n	%	n	%
Total subjects taught				
1-3 subjects	9	16.4	83	92.2
4-7 subjects	20	36.4	2	2.2
8-11 subjects	22	40.4		
Time teaching/day				
less than 4 hours	6	10.9	37	41.1
more than 4 hours	44	80.0	40	44.4
less than 3 hours	15	27.3	16	17.8
3-5 hours	12	21.8	32	35.6
more than 5 hours	22	40.0	31	34.4
Teaching experience				
less than 6 years	8	14.5	6	6.7
6-10 years	6	10.9	6	6.7
10-15 years	3	5.5	6	6.7
15-20 years	7	12.7	13	14.4
more than 20 years	27	49.1	53	58.9
Degree held				
bachelor	38	69.1	63	70.0
master	15	27.3	25	27.8
other	1	1.8		

Note. Totals do not always equal 55 and 90 because of the occasional no response.

Instrument

The questionnaire used in this study was constructed by the author. It was anonymous and voluntary. An initial pool of 32 items was subjected to a pilot study to ensure that items and instructions for completion were clear and unambiguous. The pilot study involved ten teachers who had similar teaching experience but were not participants in the study. Subsequent to the pilot study the same number of items were retained with a minor change in wording.

The questionnaire first sought information concerning professional training and experience (See Table 1).

Following the biographical section, the questionnaire was organized in three parts. Part I included thirty-two statements using a 5-point Likert scale ranging from "Strongly agree" (5 points) to "Strongly disagree" (1 Point) for positively worded statements, with the weights reversed for an equal number of negatively worded statements. Total scores fall between 32 and 160. Ninety-six represents the mid-point for the theoretical range of scores. A score above 96 represents a positive opinion about subject specialists in teaching early adolescents while a score below 96 indicates a negative perception.

The content was organized in terms of four domains derived from the review of the literature:

Domain 1: the needs of students

Items #1, #7, #12, #16, #25, and #26 pertain to the needs characteristic of early adolescence, particularly the growing capability to function at higher cognitive levels as in mathematics and science.

Domain 2: teachers' workload and roles

Items #6, #9, #20, #24, #27, and #28 concern time management issues and the teacher's role.

Domain 3: teacher preparation

Items #2, #3, #5, #8, #11, #13, #15, #17, #18, #21, #23, #29, #31, and #32 deal with content knowledge and teaching skills and the need for trade-off with each other.

Domain 4: professional development

Items #4, #10, #14, #19, #22, and #30 refer to the needs of interaction among teachers and opportunity for continuing development in each subject they are required to teach.

Part II included two multi-part items. The first assessed teacher opinions about preparedness for teaching

subjects in the upper three grades as required by elementary school curriculum.

The second item allowed participants to indicate the grade (from 6 to 9) at which the subjects would preferably be taught by specialists.

Part III consisted of a single open-ended item permitting clarification and expansion of opinions.

Data Analysis

The Statistical Package for Social Sciences (SPSS) was used in analyzing all the data. Descriptive statistics for both samples were computed. Distributions were described in terms of frequencies and percentages.

The mean scores for the 32-item pool of the secondary school teachers were compared with those of elementary teachers by *t*-tests. Possible differences in opinions in the four content domains between teacher mean scores were also examined by *t*-tests

One-way ANOVA tests were carried out to examine background variables associated with teachers' opinions about specialists in teaching early adolescents, followed by post hoc comparison analyses (Scheffé) when appropriate.

Chi-square tests were conducted to compare the opinions of the two independent samples regarding teacher

preparedness and preference for the grade level at which subject specialists should first be provided.

CHAPTER 4

RESULTS

Reliability and Validity of Instrument

Reliability was estimated by a measure of homogeneity, Cronbach's alpha. An overall alpha of .91 was obtained indicating a degree of reliability appropriate for an opinion questionnaire.

Construct validity was investigated by factor analysis (Principal components analysis followed by Varimax rotation). Factor analysis of the 32 Likert type items yielded seven factors with Eigen-values above 1.00. Items considered meaningful for each factor were those with loadings greater than .35 on that factor. As indicated in Table 2, seven items had loadings over .35 on two factors. Two items had loadings over .35 on three factors. No item loaded less than the .35 level on any one factor. Approximately 59% of the total variance was accounted for by the seven factors obtained in the analysis. These seven factors were identified by examination of the items with highest loadings.

Table 2.

Factor Loadings for 32 Teacher Opinion Variables

Item	Factor 1 Student Needs	Factor 2 Teacher Professionlism	Factor 3 Workload	Factor 4 Teacher Needs	Factor 5 Teacher Preparedness	Factor 6 Respon-sibility	Factor 7 Interac-tion
	.795	.160	-.026	.089	.142	.093	.087
2	.583	.104	.068	.039	.154	.285	.121
12	.603	.333	.039	.232	.016	.136	.258
11	.587	.216	.070	.130	.124	.101	.166
13	.565	.103	.113	.164	.064	.322	.069
4	.562	.056	.069	.041	.162	-.190	-.006
16	.242	.771	.102	.124	.104	.095	-.015
17	.058	.704	.010	.121	.210	.167	.142
7	.214	.629	.328	-.106	.289	.165	.037
5	.211	.600	.022	-.064	.270	.229	.140
26	.521	.584	.140	.162	-.055	-.057	.136
28	.054	.037	.696	.291	.105	.052	.109
24	-.227	-.196	.678	.025	.051	.040	.217
27	.322	.271	.659	.109	.062	.106	.134

(Table continues)

Table 2. (continued)

Item	Factor 1 Student Needs	Factor 2 Teacher Professionlism	Factor 3 Workload	Factor 4 Teacher Needs	Factor 5 Teacher Preparedness	Factor 6 Respon-sibility	Factor 7 Interac-tion
14	.084	.168	.657	.204	.145	.103	.031
9	.121	.260	.590	.371	.008	-.197	.082
25	.392	.381	.409	.094	.053	.187	.020
20	.198	-.054	.158	.786	.001	.093	.059
19	.167	.112	.027	.766	.059	.111	.081
10	.077	-.000	.164	.741	.106	.192	-.005
21	.054	.099	.151	.616	.173	.168	.045
18	.202	.137	.207	.507	.395	.256	.065
8	.137	.340	.113	.098	.776	.025	.030
3	.228	.344	-.007	.093	.729	.044	-.015
29	.140	.048	.233	.364	.672	.060	.092
23	.218	.004	.430	.075	.471	.240	.376
32	.021	.308	.043	.095	.123	.699	.303
15	.263	.150	.142	.065	.056	.557	-.017
31	.154	.389	-.013	.155	.130	.423	-.175
30	.226	.188	.141	.099	.053	.056	.736
22	.108	.006	.407	.161	.260	.114	.497
6	.118	.039	.392	.020	-.247	.405	-.464

The factors are discussed briefly below:

Student Needs

This factor represents teachers' perceptions of their students' social, emotional, physical and academic needs.

Teacher Professionalism

Factor 2 describes positive teacher influence by the employment of different teaching approaches, academic background and harmonious relationship with students that may provide them with a sense of security.

Workload

Factor 3 describes problems associated with teacher workload, including preparation time .

Teacher Needs

Factor 4 describes professional needs of teachers including professional development.

Teacher Preparedness

Factor 5 represents perceptions of their preparedness for teaching all the subjects they are required to teach, especially math and science at the upper elementary level.

Responsibilities

Factor 6 describes teachers perceived responsibility for students' social-emotional well-being as well as their academic success.

Interaction with Colleagues

The seventh factor appears to represent teacher perceptions of opportunities to interact with their colleagues.

Because of the small number of variables which load on factors 6 and 7, identification of these factors is tentative.

Overall Comparison of Opinions

Frequencies were counted according to the sum score each respondent obtained. The opinion was considered positive if the sum was larger than 96 points (96 is the mid-point of the total score of 32 items using a 5-point Likert scale) , and negative if it was less than 96. Table 3 presents the numbers of respondents who favored or

opposed subject specialists in teaching early adolescents. As is shown, 47.3 percent (26/55) of the elementary school respondents favored, and 52.7 percent (29/55) opposed subject specialists in teaching early adolescents. This contrasted with 84.4 percent (76/90) of the secondary school respondents who favored and 15.6 percent (14/90) who were against this approach.

Table 3.

Frequencies of Teachers Favoring and Opposing Subject Specialist in Teaching Early Adolescents

Participants	Favor	Oppose	Totals
Elementary	26	29	55
Secondary	76	14	90
Totals	102	43	145

Comparison of mean scores for overall opinion (Table 4) shows a significant difference in opinions exists between the two groups of participants, $t\ (143) = -5.57$, $p < .001$. In other words, secondary school teachers are more positive than elementary teachers about subject specialists in teaching early adolescents.

Table 4.

Means and *t* Values for Elementary and Secondary Participants: Overall Opinion Scale

Participants	n	M	SD	t
Elementary	55	92.65	18.76	-5.57***
Secondary	90	107.91	14.04	

Note. *** $p < 001$.

Comparisons were also made between mean scores in each domain obtained by the two groups using t-tests.

Since a 5-point Likert scale was used and there were six statements in domains 1, 2 and 4, respectively, a score of 18 indicates a neutral opinion. For Domain 3, which included 14 items, a neutral opinion is then represented by a score of 42. Data presented in Table 5 reveal that significant differences exist for mean scores with the exception of Domain 2. In other words, opinions regarding students' needs, teacher preparation and professional development differ significantly between elementary and secondary teachers whereas opinions were coincidentally favorable to specialist teaching in terms of elementary teachers' workload and roles. At this point, the mean

score of elementary participants exceeded that of secondary respondents.

Table 5.

Means and *t* Values for Each Domain: Elementary and Secondary Respondents

Domain	n	M	SD	*t*
1: Needs of students	55	15.11	4.85	-7.15***
	90	20.32	3.85	
2: Workload & roles	55	20.53	4.63	.86 NS
	90	19.93	3.61	
3: Preparation	55	39.36	8.51	-6.56***
	90	47.82	6.89	
4.Professional growth	55	17.65	3.75	-3.53***
	90	19.83	3.51	

Note. Elementary: 55, secondary: 90. *** $p < .001$

Areas of Agreement

In addition to the consensus of opinions concerning elementary teacher work overload, other views were found to be similar among more than 50% of the respondents in each group. Both elementary and secondary respondents agreed

group. Both elementary and secondary respondents agreed that elementary teachers should be responsible for students' social, personal well-being as well as their formal learning (#6) and recognized the likelihood that specialist teachers over-emphasize the importance of their own subject and under-emphasize the importance of others (#15). As well, they believed that in self-contained classrooms, the amount of time spent on a certain subjects depends, to some extent, on teachers' knowledge and interests (#23).

Fifty-five percent of elementary and 67% of secondary respondents disagreed that elementary teachers were well prepared in terms of knowledge of content for all the subjects they are required to teach (#18). Sixty-eight percent of elementary and 54% of secondary teachers perceived that elementary teachers sometimes felt the need to trade-off with others for teaching math (#21). Eighty-three percent of elementary and 89% of secondary teachers agreed that elementary teachers had little time for preparation (#10). Sixty-one percent of respondents in both groups also perceived a lack of opportunity for elementary teachers' professional development in the subject areas where they felt weak (#19). Over 86% of elementary and secondary teachers believed that it would be

easier for a teacher to keep abreast of developments in one or two subjects than in many subjects (#14).

Areas of Disagreement

Significant differences found between elementary and secondary respondents in the other three domains are as follows: 74% of elementary respondents considered 'a generalist teacher would better know each student's strengths and weaknesses and better accommodate to their individual needs than a specialist' (#1) while about 50% of the secondary respondents disagreed or strongly disagreed ($\chi^2 = 43.20$, $p < .001$). Forty-two percent of elementary participants who disagreed that 'knowledgeable specialists can better instill positive attitudes toward specific subjects such as math and science than generalists' (#7) were compared with 72% of secondary participants who agreed or strongly agreed ($\chi^2 = 18.96$, $p < .001$).

Similarly, about 50% of the elementary teachers disagreed and strongly disagreed with the statement 'students in grades 6,7 and 8 would benefit more from experiencing different styles of teaching by several teachers than from being taught by a generalist' (#16). This contrasted with 66% of the secondary teachers who agreed and strongly agreed with the statement ($\chi^2 = 26.01$,

$p < .001$). Fifty- nine percent of elementary respondents were in contrast to 24% of secondary teachers in agreement that 'generalist teaching can better meet the needs relating to early adolescents' (#12) intellectual development' ($\chi^2 = 25.33$, $p < .001$).

Sixty-two percent of elementary respondents perceived 'organizing the curriculum in terms of broad program areas instead of traditional subject disciplines' as 'fostering academic achievement' (#25) in comparison with 30% of secondary teachers ($\chi^2 = 15.64$, $p < .01$). In contrast to 10% percent of secondary respondents, 42% percent elementary respondents disagreed and strongly disagreed that elementary teachers should not be required to teach subjects beyond their expertise (#17, $\chi^2 = 24.0$, $p < .001$). Fifty percent of elementary responses agreed and strongly agreed that 'the upper three (i.e. 6-8) graders should be provided with a sense of security by allowing them to remain with a single classroom teacher' (#26), in contrast to 51% of secondary respondents who opposed it ($\chi^2 = 22.61$, $p < .001$). Of those responding to #2, 'A generalist teacher's ability to integrate the curriculum increases the likelihood of excellent instruction', 72% of elementary respondents were positive compared with a 50% negative response among secondary teachers ($\chi^2 = 35.13$, $p < .001$).

Approximately 67% of the elementary teachers surveyed did not believe that 'a subject specialist will in all likelihood do a better job than a generalist in the integration of knowledge at the upper elementary levels' compared with 43% of the secondary teachers who agreed with it ($\chi^2 = 25.86$, $p < .001$). (#5) Fifty-nine percent of the elementary respondents agreed that 'generalist teachers are more likely than subject specialists to recognize a student's misunderstanding of particular concepts' (#11) as compared with 47% of secondary respondents who disagreed ($\chi^2 = 17.62$, $p < .01$).

Sixty-one percent of the elementary teachers perceived long hours spent teaching in classrooms as no handicap to interaction with colleagues (#22), compared with 15% of the secondary teachers ($\chi^2 = 39.40$, $p < .001$). The item about teacher desks kept in the classroom as opposed the staffroom (#4) also resulted in a significant difference. Eighty-three percent of the elementary teachers thought 'a large staff room with individual desks would do little to foster interaction with colleagues' compared with 38% of secondary respondents ($\chi^2 = 42.08$, $p < .001$).

Variables Associated with Teacher Opinions

One-way analyses of variance on background variables and opinions were carried out to determine whether background variables were associated with teacher opinions at elementary and secondary levels. The results of ANOVA tests are summarized in Tables 6 and 7 and followed by reporting the results of Scheffé tests for post hoc comparisons.

As is shown in Tables 6, the F ratios for 'grade now', 'grade past' and 'total subjects' by teachers' opinion were statistically significant. In other words, variations in teacher responses were found to be associated with the grade level currently taught, grades taught in the past, and the number of subjects taught.

Table 6.

ANOVA Tests for Variables of Grades and Subjects

Source	n	M	SD	F
Grade now				11.26***
JK-5		80.56	33.42	
6-8	39	95.74	13.20	
9, 10	57	107.58	15.13	
11-OAC	27	108.63	12.73	
Grade past				3.38*
JK-5		82.80	48.14	
6-10	135	102.88	15.49	
11-OAC		106.67	4.16	
Subjects taught				2.45 NS
math, science included	91	101.42	16.70	
math, science excluded	44	105.80	11.61	
Total subjects				10.75***
1-3	92	106.16	14.55	
4-7	22	99.18	13.58	
8-11	22	91.23	12.53	

Note. *$p < .05$, ***$p < .001$

Grade Currently Taught

For the variable 'grade taught', statistically significant differences existed between the groups, $F(3, 128) = 11.26$, $p < .001$. Post hoc analysis (Sheffé test) revealed that two groups of secondary school responses (i.e., the group of grades 9 and 10 and the group of grade 11-OAC) had significantly higher mean scores (i.e., more positive opinions about specialists in teaching early adolescents) than elementary responses in each of the other two groups ($p < .05$). Teachers in grade JK-5 and grade 6-8 were not significantly different from each other. However, ascending mean scores were found with the increasing grade level teachers are teaching.

Grades Taught in Past

The overall F-test comparing the three groups of teachers with teaching experience in different grades achieved a significant difference at .05 level, $F(2, 140) = 3.38$. Post hoc analysis (Sheffé test) showed teachers with experience in teaching JK-5 had a significantly lower mean score (i.e. less positive opinions about this issue) than teachers with experience teaching in grades 6-10 ($p < .05$).

Total Number of Subjects Taught

A significant difference was found between teachers in the three groups, $F(2, 133) = 10.75$, $p < .001$. Post hoc analysis (Sheffé) showed that teachers teaching 1-3 subjects had a significantly higher mean score than teachers who were teaching 8-11 subjects ($p < .05$), that is, the number of subjects taught was related to teacher opinion.

As is shown in Table 6, no significant difference for the variable of subjects currently taught, $F(1, 133) = 2.45$, p = NS. In other words, this variable was not associated with teacher opinion.

F values presented in Table 7 show no significant difference for variables of time spent teaching in the classroom, time spent on job related activities, years of teaching experience and academic credentials, that is, they are not associated with teacher opinion.

Table 7.

ANOVA Tests for Variables of Time Expenditure, Experience and Qualification

Source	n	M	SD	F
Time teaching/day				.38
less than 4 hours	43	103.63	15.63	
more than 4 hours	84	101.57	18.95	
Time on job/day				.92
less than 3 hours	31	99.55	22.36	
3-5 hour	44	105.23	16.47	
more than 5 hours	33	102.57	16.09	
Experience				1.16
less than 6 year	14	110.07	12.11	
6-10 years	12	96.25	17.56	
11-15 years	9	100.56	12.25	
16-20 years	20	102.35	12.65	
more than 20 years	80	101.71	18.80	
Degree held				2.66
bachelor	101	103.47	15.91	
master	40	99.18	21	
Other		69.00		

Note. p : NS

Teaching Preparedness

Chi-square tests were conducted to determine whether overall opinions regarding degree of preparedness for teaching various subjects to grades 6, 7 and 8 differed significantly between elementary and secondary respondents. Analyses showed significant differences in opinions about preparedness to teach language arts, math and science. No significant difference was found in opinions regarding preparedness for teaching social studies, computers, art, music and physical education. Percentages of respondents and their perceived degree of preparedness are comparatively presented in Figures 1-8. The totals of respondents vary due to the changing number in responses to this item.

Language Arts

A chi-square value of 7.54 (2, N = 115, p < .05) was obtained. Significant difference was found in overall opinions regarding preparedness for teaching language arts between 54 elementary and 61 secondary respondents.

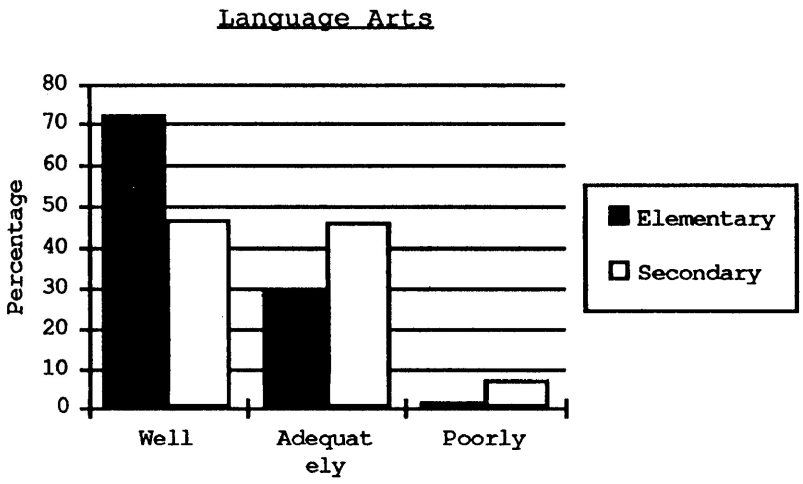

Figure 1. Opinions about Degree of Preparedness for Teaching Language Arts

As is shown in Figure 1, 72% of elementary respondents considered teachers of the upper three grades were 'well prepared' compared to 47% of secondary respondents. Thirty percent of elementary responses believed these teachers were 'adequately prepared' compared with 46% of secondary respondents. About 2 percent of elementary teachers and 7 percent of secondary teachers speculated teachers of grades 6, 7 and 8 as 'poorly prepared'.

Math

A chi-square value of 36.76 (2, N = 114, p < .001) revealed significant difference in overall opinions between 54 elementary and 60 secondary respondents regarding preparedness in teaching math.

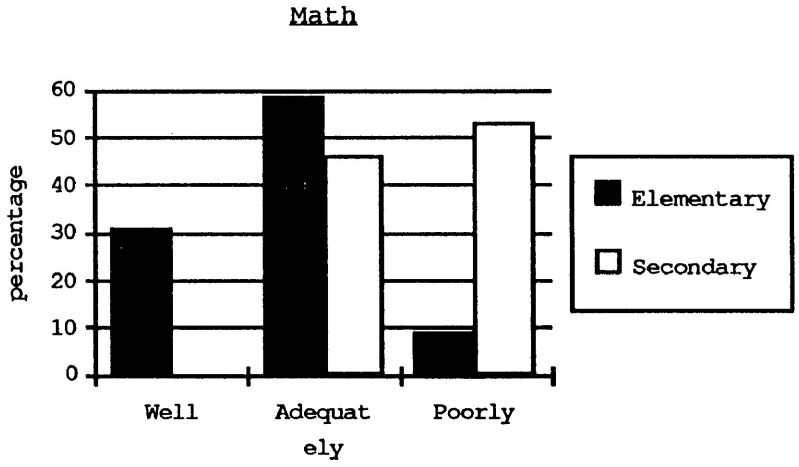

Figure 2. Opinions about Degree of Preparedness for Teaching Math

Thirty-one percent of elementary respondents felt teachers of the upper three grade levels were 'well prepared' to teach math in contrast to none of secondary respondents (see Figure 2). Fifty-nine percent of elementary teachers perceived these teachers as 'adequately prepared' as compared with 46% of secondary teachers. Nine

percent of elementary respondents who checked 'poorly prepared' contrasted with 53% of secondary respondents.

Science

A chi-square value of 20.32 (2, N = 115, p < .001) was obtained indicating significant difference in opinions regarding preparedness to teach science between 54 elementary and 61 secondary teachers.

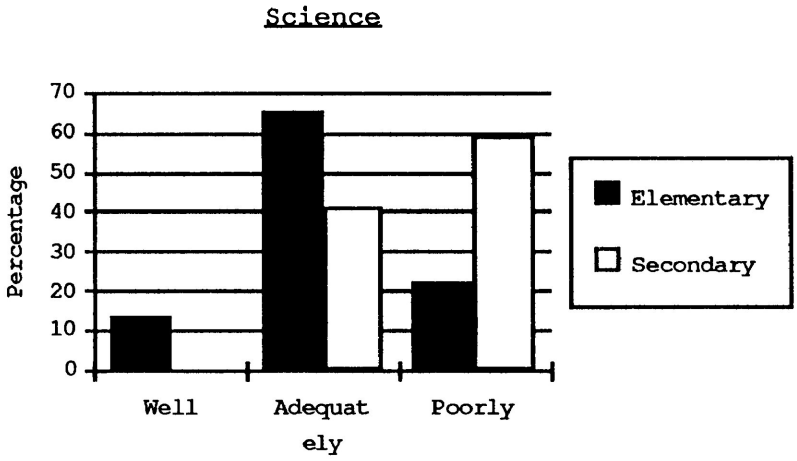

Figure 3. Opinions about Degree of Preparedness for Teaching Science

Thirteen percent of elementary respondents considered teachers of grades 6, 7 and 8 were 'well prepared' for teaching science (see Figure 3) in contrast to none of secondary respondents who checked this response. Sixty-five percent of elementary respondents indicated that they

perceived teachers to be 'adequately prepared' compared with 41% of secondary respondents. Twenty-two percent of elementary teachers checked 'poorly prepared' contrasted with 59% of secondary respondents.

Social Studies

No significant difference was found in opinions about preparedness to teach social studies between 53 elementary and 59 secondary respondents, X^2 (2, N = 112) = .91, p : NS.

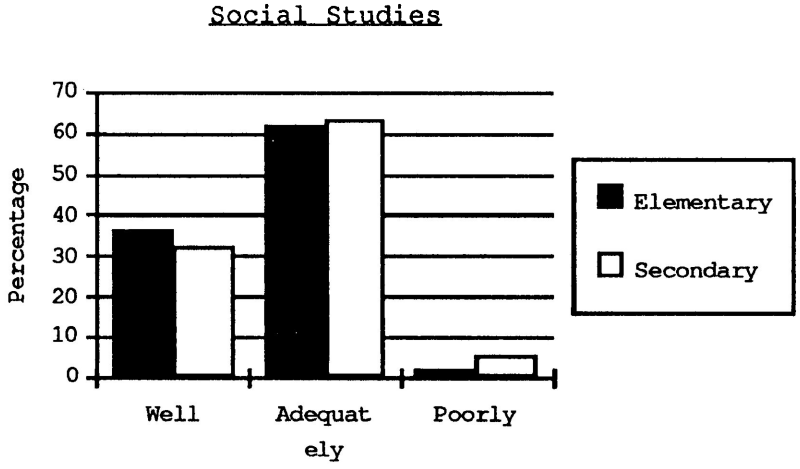

Figure 4. Opinions about Degree of Preparedness for Teaching Social Studies

Thirty-six percent of elementary responses perceived teachers of the upper three levels as 'well prepared' to

teach social studies as compared with 32% of secondary responses (see Figure 4). Sixty-two percent of elementary teachers checked 'adequately prepared' in comparison with 63% of secondary teachers. Two percent of elementary and 5% of secondary respondents checked 'poorly prepared'.

Computers

A chi-square value of 1.05 (2, N = 111, p : NS) was obtained revealing no significant difference in overall opinions regarding preparedness to teach computers between 54 elementary and 57 secondary teachers.

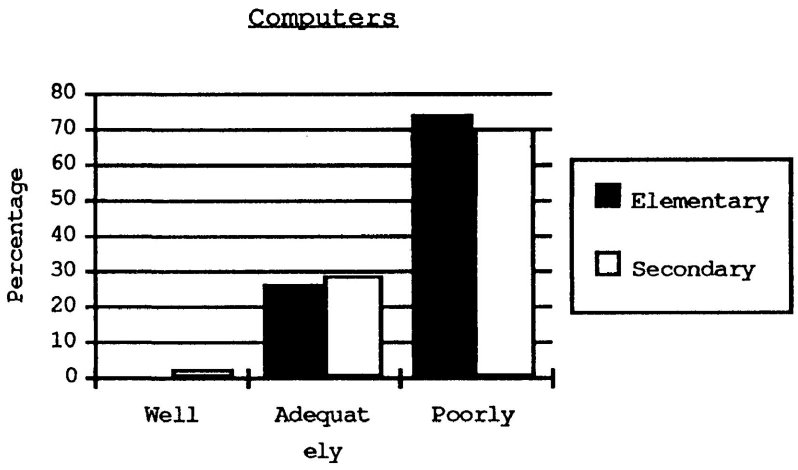

Figure 5. Opinions about Degree of Preparedness for Teaching Computers

As shown in Figure 5, none of elementary respondents checked 'well prepared' in their opinion about preparedness to teach computers compared with 2% of secondary respondents. Twenty-six percent of elementary and 28% of secondary teachers chose 'adequately prepared'. Seventy-four percent of elementary and 70% of secondary responses agreed with 'poorly prepared'.

Art

No significant difference existed in overall opinions about preparedness to teach art between 53 elementary and 59 secondary responses, χ^2 (2, N = 112) = 2.52, p : NS.

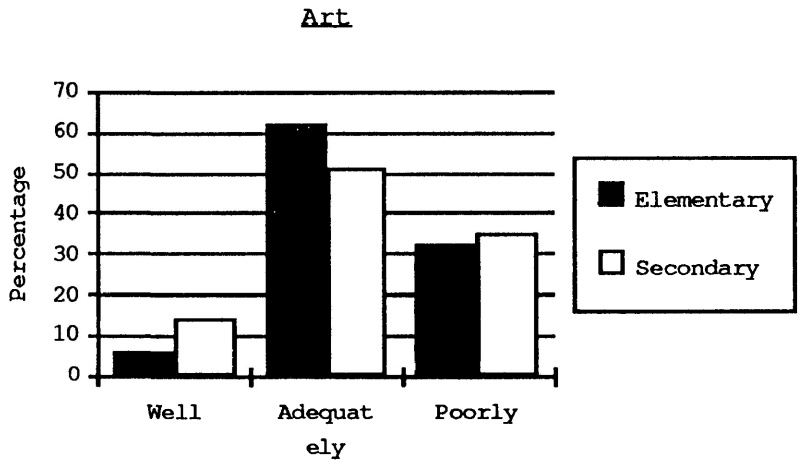

Figure 6. Opinions about Degree of Preparedness for Teaching Art

Six percent of elementary responses favored 'well prepared' compared with 14% of secondary responses (see Figure 6). Sixty-two percent of elementary and 51% of secondary teachers checked 'adequately prepared'. Thirty-two percent of elementary and 35% of secondary agreed with 'poorly prepared'.

Music

No significant difference was found in overall opinions concerning preparedness of teachers at the upper three levels to teach music between 52 elementary and 58 secondary responses, χ^2 (2, N = 110) = 4.62, p : NS.

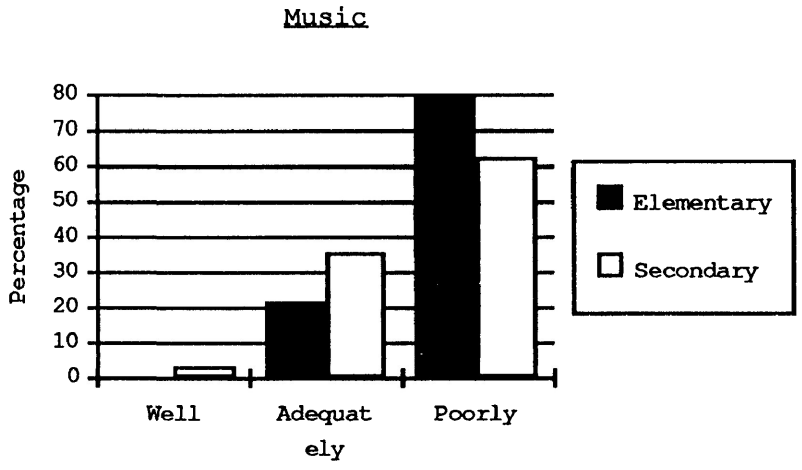

Figure 7. Opinions about Degree of Preparedness for Teaching Music

None of elementary responses agreed with 'well prepared' compared with 3% of secondary teachers (see Figure 7). Twenty-one percent of elementary respondents favored 'adequately prepared' as compared with 35% of secondary teachers. Seventy-nine percent of elementary and 62% of secondary respondents checked 'poorly prepared'.

Physical Education

There was no significant difference in overall opinions about preparedness of teachers in the upper three grades to teach physical education between 52 elementary and 62 secondary teachers, χ^2 (2, $\underline{N}$ = 114) = 1.74, $\underline{p}$: NS.

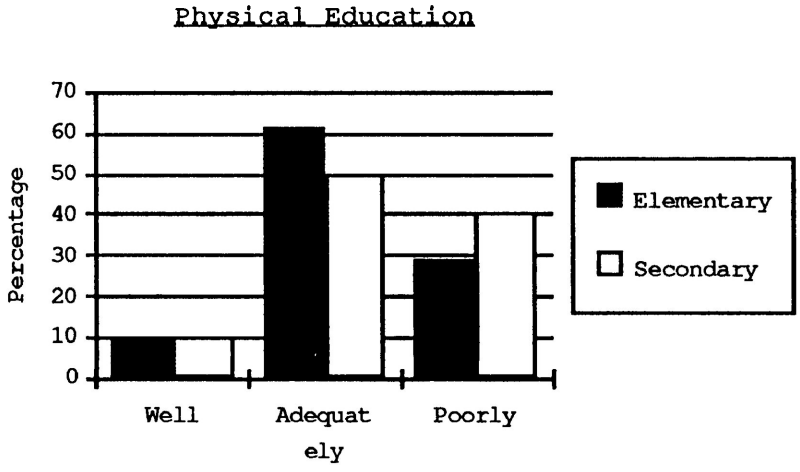

Figure 8. Opinions about Degree of Preparedness for Teaching Physical Education

Ten percent of both groups favored 'well prepared' in their opinion regarding preparedness to teach physical education (see Figure 8). Sixty-one percent of elementary checked 'adequately prepared' compared with 50% of secondary responses. Twenty-nine percent of elementary teachers checked 'poorly prepared' as compared with 40% of secondary respondents.

Preferred Grade Level for Use of Subject Specialists

Tables 9 to 16 present frequencies and percentages of the responses regarding choices of the grade level at which subject specialists are preferably to be used.

Chi-square tests show significant differences between elementary and secondary respondents in preference for the grade level at which language arts, science, math and computer specialists should be first provided as needed. No significant difference was found in grade level preference between elementary and secondary respondents for the use of specialist teaching social studies, art, music and physical education.

Table 8.

Preferred Grade Level for Use of Language Arts Specialists

	Elementary		Secondary		
	n	%	n	%	X^2
Grade 6	5	11.9	18	27.7	
Grade 7	10	23.8	15	23.1	
Grade 8	2	4.8	10	15.4	
Grade 9	23	54.8	21	32.3	
Above 9	2	4.8	1	1.5	
Totals	42	100	65	100	9.61*

Note. * $p < .05$

Significant difference existed between elementary and secondary respondents in preferred grade levels for use of language arts specialists, X^2 (4, N = 107) = 9.61, $p < .05$ (see Table 9). Fifty-four percent of elementary respondents expressed their preference for language arts specialists to be first provided at grade 9 as compared with 32% of secondary respondents. Twelve percent of elementary respondents preferred grade 6 compared with 27% in the secondary group.

Table 9.

Preferred Grade Level for Use of Science Specialists

	Elementary		Secondary		
	n	%	n	%	x^2
Grade 6	9	20.9	22	31.4	
Grade 7	14	32.6	26	37.1	
Grade 8	3	7.0	12	17.1	
Grade 9	15	34.9	9	12.9	
Above 9	2	4.7	1	1.4	
Totals	43	100	70	100	10.43*

Note. * $p < .05$

A chi-square value of 10.43 (4, N = 113) reveals significant difference at .05 level between elementary and secondary respondents in preferred grade levels for use of science specialists (see Table 10). Thirty-five percent of elementary respondents favored grade 9 in contrast to 13% of secondary respondents. Twenty-one percent of elementary teachers preferred grades 6 as compared with 31% of secondary teachers agreed.

Table 10.

Preferred Grade Level for Use of Math Specialists

	Elementary		Secondary		
	n	%	n	%	X^2
Grade 6	6	14.0	24	34.8	
Grade 7	14	32.6	27	39.1	
Grade 8		2.3		10.1	
Grade 9	20	46.5	10	14.5	
Above 9	2	4.7		1.4	
Totals	43	100	69	100	18.02**

Note. ** $p < .01$

Significant difference existed between elementary and secondary respondents in preferred grade level for use of math specialist, X^2 (4, N = 112) = 18.02 , $p < .01$ (see Table 11). Forty-six percent of elementary respondents checked grade 9 compared with 14% of secondary respondents. However, 14% of elementary respondents who favored grade 6 compared to 35% of secondary respondents.

Table 11.

Preferred Grade Level for Use of Computer Specialists

	Elementary		Secondary		
	n	%	n	%	X^2
Grade 6	30	66.7	25	39.1	
Grade 7	5	11.1	19	29.7	
Grade 8	0	0	6	9.4	
Grade 9	8	17.8	13	20.3	
Above 9	2	4.4	1	1.6	
Totals	45	100	64	100	13.24**

Note. * *p = .01

Significant difference existed between elementary and secondary respondents in preference for grade level at which computer specialists should be provided, X^2 (4, N = 109) = 13.24 , p = .01 (see Table 12). Compared with 39% of secondary respondents, elementary respondents overwhelmingly considered computer specialists were needed in grades 6.

Table 12.

Preferred Grade Level for Use of Social Studies Specialists

	Elementary		Secondary		
	n	%	n	%	X^2
Grade 6	7	16.7	10	16.7	
Grade 7	11	26.2	13	21.7	
Grade 8	2	4.8	11	18.3	
Grade 9	20	47.6	25	41.7	
Above 9	2	4.8	1	1.7	
Totals	42	100	60	100	4.79

Note. p : NS

No significant difference existed between elementary and secondary responses in choice of grade level at which social studies specialist should be used, X^2 (4, N = 102) = 4.79 p: NS (see Table 13). A large proportion of respondents in both groups favored grade 9 for the introduction of social studies specialists.

Table 13.

Preferred Grade Level for Use of Art Specialists

	Elementary		Secondary		
	n	%	n	%	X^2
Grade 6	17	37.0	18	28.1	
Grade 7	12	26.1	12	18.8	
Grade 8	2	4.3	4	6.3	
Grade 9	14	30.4	29	45.3	
Above 9		2.2	1	1.6	
Totals	46	100	64	100	3.06

Note. p : NS

No significant difference was found between elementary and secondary groups in their preference for grade level at which art specialists should be provided, X^2 (4, N = 110) = 3.06 , p: NS (see Table 14). Thirty-seven percent of elementary respondents preferred grade 6 compared with 28% of secondary respondents. Thirty percent of elementary and 45% of secondary teachers favored grade 9.

Table 14.

Preferred Grade Level for Use of Music Specialists

	Elementary		Secondary		
	n	%	n	%	X^2
Grade 6	22	47.8	28	42.4	
Grade 7	13	28.3	16	24.2	
Grade 8	2	4.3	8	12.1	
Grade 9	8	17.4	13	19.7	
Above 9	1	2.2	1	1.2	
Totals	46	100	66	100	2.32

Note. p : NS

A chi-square value of 2.32 (4, N = 110, p : NS) shows no significant difference between elementary and secondary respondents in preferred grade level for use of music specialists (see Table 15). A large proportion of respondents in both groups preferred the use of music specialists at lower levels.

Table 15.

Preferred Grade Level for Use of Physical Education

	Elementary		Secondary		
	n	%	n	%	X^2
Grade 6	18	39.1	21	31.3	
Grade 7	10	21.7	13	19.4	
Grade 8		2.2	6	9.0	
Grade 9	16	34.8	26	38.8	
Above 9	1	2.2	1	1.5	
Totals	46	100	67	100	2.77

Note. p : NS

No significant difference was found between elementary and secondary respondents in their opinion regarding preferred grade level for use of physical education specialists, X^2 (4, N = 113) = 2.77 , p : NS (see Table 16). As compared with 39% of the elementary respondents, 31% of secondary respondents preferred physical education specialists with grades 6. About 35% of elementary teachers preferred that these specialists be available to teach grade grade 9 in comparison with approximately 39% of secondary respondents..

Open-Ended Comments

About one-fifth of the participants offered their opinions concerning the issues raised in the questionnaire. These open-ended comments are appended (see Appendix C).

Comments Favoring the Generalist Approach

Teachers who favored generalist teaching throughout the elementary schooling strongly disagreed with specialists teaching separate subjects at grades 6, 7 and 8. In their view, "generalist teaching enables teachers to better prepare students for cooperative learning, track students' skills, study habits in a more consistent manner and end up dealing (helping) with the social emotional aspects of their students." One teacher expressed the view, widely held among these respondents, that "a generalist is able to develop a better rapport with the student, a better knowledge of the student, a better comfort level for the student."

Another teacher commented that knowledge of child development, teaching strategies and classroom management were far more important and difficult to learn than the content of the curriculum. "Therefore, as intelligent

people, we can learn new content areas fairly easily. It is the art of imparting this content in an interesting, motivating, and accessible way and of directing a safe, tolerant, co-operative classroom that is the true challenge of teaching." Another teacher was aware of potential weaknesses of generalist teaching although he supported this approach: "At some point in each subject the expertise required is too high to expect the generalist to handle."

Some teachers argued that the "individual teacher's attitude is the most important factor in how well they were prepared for any subject." Even though they might feel inadequate sometimes, it was felt that generalists would seek help from their colleagues. "Effective teachers search out and find the professional development they require."

In summary, "It is better for students' emotional/social growth in grades 6/7/8 to have a good generalist rather than numerous specialist teachers." "I don't believe that the use of specialist should be mandated. Even high schools should hire more generalist teachers."

Comments Favoring the Specialist Approach

Teachers who favored a specialist approach were particularly concerned about the need for mathematics and science specialist teaching. They believed mathematics and science should definitely be taught by specialists from Grade 7 on. One respondent expressed the common concern: "The more profoundly a subject is studied, the more it becomes apparent that links are to be found between many interlocking areas." Another participant reflected upon the years when Grades 7 and 8 in his school were taught on a rotary basis with specialists. He wrote, "The system worked beautifully. Teacher 'specialized' in the subject areas they held expertise in or an interest in. Workload was eased because preparation was eased. Subject enthusiasm was contagious between teacher and student." Still another attached the importance of the use of specialists in upper grade levels to student preparation for Grade 9.

One teacher who favored specialist teaching in music, art, computers and physical education explained: "They are areas that not every teacher will have expertise of training or interest in, and physical education is important because of the safety of the children."

Comments on Teacher Education

Other teachers related the issue of specialist teaching to pre-service and continuing teacher education. The effectiveness of the Faculties of Education in the preparation of generalists was questioned. "If prospective teachers were taught all the subjects they will be required to teach, perhaps teacher would be prepared in all fields." Another teacher noted, "It is important for teachers in Grade 6, 7, 8 to receive more support/professional development to support subject specific updates in curriculum integration and specific program delivering. Students require expanded science programs to be able to meet the outcomes prescribed by *the Common Curriculum*. Also in the math area there are some 'missing links' occurring in students' background info!"

A Dilemma?

One teacher reflected on the issue of generalists or specialists teaching early adolescents this way: "I see a real 'struggle' between the two viewpoints--specialist teacher can have the best mastery over subject contents but generalists who stay with a group of students can best meet their social-emotional growth. Which is more important?"

CHAPTER 5

DISCUSSION AND CONCLUSIONS

This exploratory study sought to examine teacher opinions regarding the use of subject specialists in teaching early adolescents and the relevant factors associated with their opinions.

The initial expectations were tested to determine: first, if secondary teachers were more positive about this issue than their elementary counterparts; second, if experience and training were associated with teacher opinions; third, if opinions about preparedness for teaching the general elementary school curriculum differed between elementary and secondary teachers; and last, if preference for the grade level at which subject specialists are first provided as needed differed between elementary and secondary teachers.

This chapter will discuss the results and findings which addressed the research questions. The chapter will conclude with limitations of the study and the implications related to future research and practice.

Generalists and Specialists

The results of the overall comparison reveal significant diversities as well as some similarities in teacher opinions concerning subject specialists in teaching early adolescents. The secondary participants were more positive than their elementary counterparts in terms of perceived benefits to formal instruction, professionalism and interaction with colleagues. Common concerns were shared, however, in some aspects of opinion and therefore must be addressed.

Sources of Difference

Two fundamentally different patterns of opinion have emerged in this study. Many elementary respondents who favored generalist teaching appeared to perceive the use of subject specialists as less beneficial to elementary students, even at the top grade levels, than the use of a single generalist. They related the value of the generalist to a better understanding of students. They believed that by establishing good teacher-student rapport a generalist teacher is more able to facilitate learning than several subject specialists. This belief was

supported by a concern that subject specialist teaching may undermine classroom care and weaken the integration supposed to exist between subjects.

Secondary participants who favored the use of subject specialists particularly in teaching math and science seemed to believe that students at the upper elementary levels need formal instruction that subject specialists could deliver better. They also argued that specialists instill positive attitudes towards the specific subject and increase the level of competence in that area.

Understanding and learning. The reason teachers need to develop a thorough understanding of students is to help in facilitating their learning. A principal advantage of generalist teaching is supposedly the fact that the teacher works with a single group of students all day and can better get to know them as individuals with unique needs and strengths. For example, one child may be strong in mathematics but have significant weaknesses in English, another may struggle with one classmate but get along amicably with another. However, when children begin to become early adolescents, their intellectual growth benefits from the challenges of formal and systematic learning. The teacher's responsiveness to students'

cognitive development is extremely important, along with the ability to evaluate their conceptual understanding of subject matter. The accomplishment of these depends, as suggested in literature, on how fully teachers themselves understand the subject conceptually. Specialist teachers should be better able to conceive goals in their subjects and to read signs of a student's misunderstanding, which help decide what questions to pose, what method to use and which tasks to select in facilitating student progress.

Classroom care. In primary grades, teachers nurture child growth as a parent-substitute in several ways, socially and emotionally. However, for those emerging adolescents, the implication of teachers' "caring" role is far beyond this narrow sense. Providing intellectual and practical skill guidance becomes a major component of a teacher's care.

Stevenson and Stigler's (1992) *The Learning Gap* has presented a picture of what constitutes classroom care in Asian schools: to polish each lesson to perfection maximizing the likelihood that learning occurs; to well organize the class to minimize the time lost; to discuss incorrect answers of students so that they can learn from the discussion; to have students to be involved in

controlling classroom discipline and etc.. The greatest classroom care is that teachers devise the techniques to achieve clarity and effectiveness in instruction to accommodate individual differences in learning abilities.

Weinert and Helmke's (1988) summary of the main characteristics of the classrooms where teachers produce substantial achievement gains is also a vivid description of classroom care: (1) a highly efficient classroom management and a very low rate of student misbehavior, (2) a strong academic focus--the time spent intensively covering content rather than on procedural activities and nonacademic social contacts, and (3) monitored and supervised seat work.

Tobin and Fraser's (1990) report of research on exemplary practice in science education provides excellent examples of classroom care in science lessons. Although there was considerable diversity in the methods used by the exemplary teachers, the exemplary teaching was distinguished from nonexemplary teachers of science in effective managerial practices, strategies and activities. Student understanding was monitored throughout the lesson, student engagement in academic tasks was encouraged and a favorable classroom environment was maintained.

Critics have argued that child-centered philosophy used to rationalize the use of generalists with young adolescents advocates "the formal outcomes of schooling . are given little attention" (Holmes, 1991, p.94-95). Care in the self-contained classroom is distant "from passing on a core of skills and knowledge" and "away from formal evaluation (testing)" (Freedman, 1993, p.17). It may benefit student-teacher relations, but at the cost of high-quality subject instruction (McPartland, 1987).

Recent research implies that carefully organized instruction is closely related to increased learning gains. Well organized classrooms are strong determinants of student learning. Teacher clarity is positively associated with student achievement especially in mathematics and science (O'Neill, 1988). It is doubtlessly important for teachers to be kind and supportive, but within a context of competent, informed teaching, "... being nice does not raise self-esteem, successful teaching does" (Freedman, 1993, p. 32).

There is, of course, grounds for the concerns expressed by advocates of generalist teaching at the upper elementary level. There is evidence pointing to higher commitment to individualized care among elementary teachers than among their secondary counterparts (Hargreaves, 1990).

However, this situation can be ameliorated when necessary conditions for classroom care in secondary schools are put in place. Supply of a 'home-based' classroom as students' school life base (where some subjects can be taught rotatorily by specialists) and the designation of a specialist responsible for a class as a primary source assistance may be desirable when the generalist model is not used.

Integration. A concern about weakening integration among subjects is the other main reservation about using specialists in grades 7 to 9. Generalist teachers are widely perceived to have the ability to teach language arts and other subjects including history and social studies at the upper elementary level. Their skills enable them to foster integration between language and these subjects.

The integration of mathematics and science at the upper three grade levels (i.e., 6, 7 and 8) remains challenging, especially in consideration of a lack of university coursework in these areas among elementary teachers. Integration interpreted by some teachers as occasions when science-related topics emerge in other subject areas (Schoencberger and Russell, 1986, p. 539) is not real integration. A mere presentation of the textbook

by 'one chapter ahead of the students' may do little to capture students' imagination about the inherent properties of mathematical science (Griffin, 1989).

It is assumed that generalist teaching provides teachers with greater opportunities to integrate subject areas. However, their competence to successfully integrate depends greatly on whether they have attained mastery over what they are teaching and how to teach it. In the words of a participant of the current study, "The more profoundly a subject is studied, the more it becomes apparent that links are to be found between many interlocking areas".

In summmary, given appropriate support, subject specialists are capable of providing the classroom care essential to systematic and formal learning among early adolescents. The capability to integrate instruction across disciplinary boundaries may actually be enhanced by a thorough comprehension of the subject matter and methods of a particular discipline by a specialist.

Developmental implication. Is social-emotional development more important than intellectual development or vice versa? This question actually has a false dichotomy. The answer is that neither should be overemphasized at the expense of the other. The argument that the child-centered

view limits efficient and effective instructional options in students' learning (Raphael, 1993; O'Neill, 1988) assumes the two are mutually exclusive. Cognitive growth in early adolescents allows teachers to introduce new and higher levels of cognitive skills at this time. Failing to make maximum use of that period may be considered analogous to delaying sowing and losing the harvest.

Dossey (1984) has reiterated the importance of using mathematics specialists in elementary schools: "To ignore this need or delay its implementation to higher levels of schooling misses the critical foundations developed in mathematics in these grade levels" (p. 3). This is strongly supported in the work of numerous scholars such as Entwisle and Hayduk (1988), Debaryshe, Patterson and Capaldi (1993), and Harel (1994).

Recently researchers have begun to plot distinct and critical periods of human brain development. They note that particular skills must be learned during these periods, or they are lost forever. Max Cynader (as cited in Dwyer, 1994), a specialist in mental growth at the University of British Columbia, claims that "the brain is most adept at mastering many of the most basic thinking skills during the primary school years, between the ages of 6 and 10" (Dwyer, 1994, p. 46). Other experts note that

once they are off track, children tend to develop negative attitudes towards learning. This may suggest an urgent need for earlier formal learning in some areas.

Professionalism and interaction. Lichtenstein, Mclauglin and Knudsen (1992) argue that teachers are empowered to pursue their profession with confidence, enthusiasm and authority by the knowledge of three overlapping areas: knowledge of professional community, knowledge of education policy and knowledge of subject area. The avenue to the acquisition of the knowledge of these areas is broad. Apart from pre-service, in-service and continuing teacher education in colleges and universities, individual studies, practice, workshops and collaboration are clearly important. However, the generalist model tends to confine teachers in their classrooms limiting the time and opportunity for interaction among colleagues and leading to infrequent opportunities for collaboration. The individual teacher's attitude is important to teaching, though, collaboration on a regular basis has implication for the classroom experiences of students as well as the teachers themselves.

Similarities of Opinion

Opinions of both elementary and secondary teachers appear similar concerning students' social and emotional needs, teaching overload and inadequate teacher preparation for math and science.

Social and emotional needs. The majority of secondary participants agreed with elementary teachers that students' social and emotional well-being needs should be satisfied along with their formal learning. This similarity tends to indicate that secondary respondents are as sensitive as elementary teachers to students' personal and social needs. While this may be interpreted as suggesting that secondary teachers favor the satisfaction of these needs within a self-contained classroom, it may demonstrate their awareness of the unique characteristics of early adolescents and the concomitant responsibility of all teachers. As a whole, secondary respondents tend to prefer a joint effort between generalists and subject specialists in educating early adolescents, and indicate their willingness to share the responsibility with a generalist teacher to provide 'classroom care' for their students.

Teaching overload. There was a consensus of opinion that elementary teachers experience an excessive workload. Elementary participants were not surprisingly more aware of this than secondary teachers. Participants reported that 36% of the elementary teachers teach between four and seven subjects and 40% of them are responsible for between eight and eleven subjects. Eighty percent reported they spent more than 4 hours in classroom teaching per school day while 40% spent over 5 hours a day on job related activities.

It is no wonder that 79% of the elementary teachers reported that they did not have an adequate amount of time for preparation, and 83% reported a lack of time for professional development. These results tend to suggest that generalist teaching is particularly demanding. Teachers are expected to demonstrate a broad knowledge of content and skills, as well as "social work" responsibilities.

It appears that little attention is given to the alleviation of generalist teacher workload in the agenda of policy makers, administrators and principals.

Results also appear to demonstrate that a solution may be to share the teaching load with other teachers and redefine elementary teachers' roles.

The agreement among elementary and secondary teachers that elementary teachers' role is "being responsible for students' social-emotional well-being as well as their formal learning" is inconsistent with the perception that elementary teachers' roles are too broad and obligations too diffuse (Stevenson, 1993; Fullan & Hargreaves, 1991).

Regardless of the observation that generalist teaching in grades 6, 7 and 8 does increase teacher's workload, over half of the elementary respondents appear to be in favor of it and find it a continuing source of gratification. This may reflect their high commitment to care for and love of students and their dedication to the teaching profession.

Inadequacies in teacher education. The fact that the majority of elementary participants reported that teachers felt the need to trade-off with others for teaching math is consistent with the findings that most participants in both groups believed that senior elementary teachers were not always thoroughly prepared to teach math. Most elementary teachers also disagreed with the proposition that elementary teachers are well prepared in terms of knowledge of content for all the subjects they are required to teach. On the one hand, this may suggest a lack of required coursework in math or the subjects they will be expected to

teach; on the other, it tends to indicate that elementary teachers are not always confident in teaching math or other subjects such as computers.

Although teaching skills themselves cannot be mastered in academic university courses, sufficient coursework, particularly in math, science, and computers, will enable prospective teachers to develop the necessary conceptual foundation to teach these subjects.

In a self-contained classroom the amount of time spent on a certain subject depends to some extent on the teacher's knowledge and interest in that subject with the consequence that teachers may avoid teaching what they do not know well (Grossman, Wilson & Shulman, 1989).

Fullan (1993) has elaborated upon what he views as an inadequately defined knowledge base for teaching and teacher education. He argues that this is a major obstacle in the evolution of teaching as a profession. Lichtenstein et al. (1992) claim in their examination of restructuring, that the expansion of teacher's roles and responsibilities will never succeed unless there is a corresponding expansion of teacher knowledge.

The argument that the content at the elementary level is not difficult (Appendix C) may not sustain inadequacies in teacher preparation, but be responsible for Ontario 13-

year-olds' poor performance in math in IAEP (as mentioned in literature review). As released by Alberta Chamber Resource (1992), the content in mathematics, physics and chemistry of Alberta grade 7 curriculum is several years behind that of comparison countries (Germany, Japan, Hungary).

Background Variables and Opinions

Instead of academic credentials, grade level taught together with the number of subjects taught was found to relate to opinions concerning use of specialist teachers with early adolescents. The higher the grade level taught, the more positive their opinions tend to be.

Teachers with experience limited to teaching JK-5 tend to favor subject specialists less than teachers who reported experience in teaching grades 6-10. This almost certainly reflects the limiting experience of the child-centered generalist approach which is central to teacher preparation in the early grades. Teachers of young children employ this approach but may fail to realize its limitations when it is applied in early adolescents. The absence of significant differences that existed in opinions

between teachers of JK-5 and those of grade 6-8 tends to confirm that the child-centered view is prevalent among elementary school teachers. This is consistent with the view of some critics of education that "the child-centered credo has dominated Ontario education" (Raphael, 1993, p. 41).

The finding that teachers responsible for 1-3 subjects held a more positive opinion than teachers who taught between eight and eleven subjects is consistent with the expectations of the study. Those who teach 1-3 subjects are predominantly secondary teachers, while those who teach 8-11 subjects are exclusively elementary teachers (as shown in Table 1). The results may indicate that teacher opinions concerning this issue are associated with experience in teaching early adolescents rather than with length of time served in the teaching profession. This suggests that by teaching these young people teachers best come to understand their significant and distinct developmental and affective needs.

Teaching Preparedness

The differences in elementary and secondary teacher opinions about preparedness for teaching language arts, mathematics and science which have emerged in this study is supported by the finding of the overall comparison that elementary participants were less inclined to favor subject specialists with early adolescents than their secondary counterparts.

Elementary respondents overwhelmingly perceived teachers of grades 6, 7 and 8 as either 'adequately prepared' or 'well prepared' to teach math and science. This finding may reflect the motivation and time expended by elementary teachers in their work, especially in view of the demanding curriculum at these levels. As noted by one participant, "Elementary school teachers work very hard yet still seem to be underpaid by comparison to secondary school teachers. They work longer hours with few breaks. They are also forced to deal with more social issues and have more parental contacts than do their secondary counterparts." (According to some scholars, elementary teachers have received comparable salaries for comparable qualifications.)

Secondary teachers' opinions appear to reflect different patterns of personal beliefs. They value academic standards and express expectations about basic subject knowledge their students are supposed to attain during elementary years. These expectations appear to influence their opinions about the role of specialist elementary teachers.

The shared opinions of both groups are of special interest. Respondents in both groups preponderantly considered elementary teachers of grades 6, 7 and 8 as "poorly prepared" for teaching computers and music. This finding is consistent with Peters' (1993) report that teachers are required to teach subjects in which they have little background. It indicates that specialist training is necessary in these subjects, and cannot be compensated for by effort, time and dedication. As one participant noted, teaching computers, music and art needs expertise, training, and interest.

Preferred Grade level for Use of Subject Specialists

Differences in teachers' preferences for the grade levels at which subject specialists should first be provided is consistent with their different opinions regarding comparative preparedness.

Elementary teachers acknowledge the strengths of subject specialists in particular areas as well as the desirability of using them for subjects where they clearly recognize the requirement of special expertise. Apparently the generalist model is not considered applicable across subject areas requiring special attainments.

Elementary respondents' preferences for the early use of subject specialists in grades 6 and 7 were found across the elementary school curriculum (see Tables 9-16). This result, along with the finding that over 75 percent of the elementary respondents favored the use of computer and music specialists with grades 6 and 7 indicates that elementary teachers recognize a role for specialist teachers in the upper grades.

The words expressing concerns about workload at the elementary level suggests that it is necessary for policy

makers to take into account this issue when making decisions about curriculum and school structure. The findings of this study broadly indicate that specialists teaching in some additional subject areas should and can be incorporated into the elementary school program. Specialists are used for good reasons in computers, music and languages. Present data imply that very serious consideration should be given to extending their use to mathematics and science.

This view challenges the recent practice in Grade 9 of Ontario secondary schools in which "subject matter and outcomes are organized into broad program areas rather than traditional subject disciplines" (*The Common Curriculum*, 1993, p.1). The current trend toward 'de-streaming' and 'subject integration' at the grade 9 level may weaken the specialist model in the high school. Instead, it may be wise to build a foundation in grades 7 and 8 of specialist teaching to further enhance mastery in grade 9.

Conclusions and Implications

It is clear that use of specialist teachers of math and science is more popular with secondary teachers than

elementary teachers in the upper grades. The opinions of both elementary and secondary teachers overlap so that the implementation of subject specialist teaching may be broadened within elementary school program. An alternative approach which might benefit students would be to use one teacher teaching those subjects where s/he has expertise as well as being in charge of the class, but assisted by several specialists covering other areas. This model would provide students with one adult as a primary source assistance, and meanwhile their formal learning and other personal needs would become the concerns of more than one teacher. Parental contacts may be more frequent not only by the home-room teacher but also by subject specialists. This blended approach would also benefit the teachers themselves by providing a reasonable teaching load and the time and opportunity for preparation and professional development. Once freed from longer hours teaching in classrooms, teachers can invest more time and energy in improving their teaching methods.

The results of this study imply that it may be unrealistic to expect teachers of early adolescents to be strong in all of the subjects in the elementary school curriculum, much less to teach them all equally well. It follows that upper elementary level teacher education

should be designed to provide sufficient coursework in content areas and require prospective teachers to specialize in one or two subjects. This approach assumes that prospective teachers must possess substantial subject matter knowledge in order to be competent to develop a conceptual understanding of the subject in their students. This model envisaged is demanding. It requires skills currently embodied in the generalist and specific knowledge and competencies recognized in the education of prospective secondary teachers.

Until changes in self-contained classroom organization are implemented, elementary teachers will continue to teach longer hours than their secondary colleagues, they will continue to be required to teach in areas outside of their interests and expertise, and they will continue to seek additional preparation time and opportunities for professional development.

Limitations

There are two chief limitations placed on the results of this study: a voluntary sample of participants was used and the instrument employed assessed their opinions, that is to say, their perceptions of two approaches to teaching adolescents. Caution should be exercised in generalizing

results. Participation was voluntary and teachers were employed by a single Board of Education in Ontario. In addition, the time of data collection coincided with a busy period of the school term, which may have limited the involvement of more elementary school teachers.

The limitations of the type of measurement involved are recognized. Opinionnaires fail to measure opinion with precision. It must also be stressed that opinions often are of unknown stability. It seems reasonable, however, to assume that the opinions measured in this study are of high salience and significance to teachers and therefore relatively long lasting. The participants came from 19 public schools and brought to the study a broad spectrum of backgrounds in teaching early adolescents.

Implications

The findings of the study have some implications for further research and practice in the upper elementary grades and the first year of secondary school.

Broader survey research to investigate perceptions of both teachers and students regarding this issue is called for in view of the current policies and practice affecting the "transition years" in Ontario. For example, a province-wide study of opinions of public and separate

school teachers, an opinion survey of secondary school students and their parents may be a helpful resource in decision-making.

Evaluation studies of pre-service and continuing teacher education programs are needed. For instance, it may be valuable to determine whether pre-service education programs adequately emphasize the differences and similarities upper elementary level teacher education share with other levels of education. It is important to examine subject content and the methods prospective teachers of early adolescents should acquire, and whether continuing education programs equip teachers with new and relevant pedagogical expertise.

Experimental studies of classes within a school or between schools could be carried out to compare the outcomes of instruction from a single generalist approach with specialist alternatives.

The results of this study suggest that both students and teachers in elementary schools where a generalist approach is employed may benefit from having math, science, computer, music and physical education specialists incorporated into the program in the upper three grade levels.

Successful implementation of elementary subject specialization in certain areas will depend on the condition that principals support teachers to work in the areas of their interest, talent and training. Specialization in mathematics, science, computers and music can begin or continue with individual teachers exchanging classes during the school day. In this way, student need not wait for elementary subject specialists to graduate and teacher workload can immediately be eased.

University preservice programs should consider implementing elementary teacher training programs that allow trainees to major in one or two teachable subjects to provide elementary schools with more subject specialists especially in the areas of mathematics, science, computers, languages and music.

Self-contained classroom instruction has benefited student-teacher relations at a possible cost of high-quality subject instruction. Departmentalization in the high schools has improved the quality of subject instruction, but at a possible cost of student-teacher relations (McPartland, 1987). A synthesis of the best aspects of the use of generalists and specialists may be an

ideal solution to the dilemma because the strengths of one single approach can complement the strengths of the other.

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APPENDIX A

A Cover Letter

June 16, 1994

Dear Colleague:

The attached questionnaire deals with teachers' opinions about the use of subject specialists, particularly in mathematics and science, at the upper elementary grades. I would very much appreciate it if you would take 5-10 minutes to complete it and return it to the box in the staff room/school office for collection in a week.

Please note that the questionnaire is anonymous and confidential.

This study is part of my M.Ed. thesis currently being completed at Lakehead University. If you have any questions or seek further information please contact me (343-8837) or my supervisor, Dr. Alan Bowd (343-8717).

A short summary of results will be sent to your school at the completion of the study for your information.

Thank you very much for your cooperation and assistance.

Sincerely,

Xiaoyu Wu

APPENDIX B

Questionnaire

TEACHER OPINIONS ABOUT THE ROLES OF SUBJECT SPECIALISTS AND GENERALIST INSTRUCTORS FOR EARLY ADOLESCENTS

June, 1994

This questionnaire deals with teachers' opinions about specialist and generalist approaches to teaching mathematics and science with early adolescents (between age 11 and 14, i.e. 6th through 9th graders).

A generalist teacher is defined as one who is required to teach most subjects of the elementary school curriculum so that the students remain with him/her for the majority of the day.

A subject specialist is one who specializes in a particular subject and may move from class to class.

This questionnaire is anonymous.

Please provide the following biographical information:

Grade/grades now teaching:_____

Grades taught in past:_____

Check the subject(s) you currently teach:

) math, ') science,) language arts,) music,

) art,) history,) geography, ') social studies,) physical education.

other (specify please): _____

Average hours spent in classroom teaching/school day: _____

Average hours spent on job related activities/school day: _____

Total years of teaching experience: _____

Degree held: ( ) Bachelors

) Masters

Other (specify) _____

Part I

Please use the following scale to indicate the extent to which you agree or disagree with each statement below by circling the appropriate letters.

SA=Strongly Agree A=Agree U=Undecided D=Disagree SD=Strongly Disagree

1. A generalist teacher will better know each student's strengths and weaknesses and better accommodate to students' individual needs than a specialist.

SA A U D SD

2. A generalist teacher's ability to integrate the curriculum increases the likelihood of excellent instruction.

SA A U D SD

3. Elementary teachers, particularly at grades 6, and 8, are not always thoroughly prepared to teach mathematics.

SA A U D SD

4. A large staff room with individual desks would do little to foster interaction among elementary school teachers.

SA A U D SD

5. A subject-specialist will in all likelihood do a better job than a generalist in the integration of knowledge at the upper elementary levels.

SA A U D SD

6. Elementary teachers should be as responsible for their students' social-emotional well-being as they are for their formal learning.

SA A U SD

. Knowledgeable specialists can better instill positive attitudes toward specific subjects such as mathematics and science than generalists.

SA A U D SD

8. Elementary teachers, particularly at grades 6, and 8, are not always well prepared to teach science.

SA A U D SD

9. Elementary school teachers are overworked because the curriculum is so broad and they are expected to teach many subjects.

SA A U D SD

10. Elementary school teachers are provided with adequate time out of the classroom for professional development in math and science.

SA A U D SD

11. Generalist teachers are more likely than subject-specialists to recognize a student's misunderstanding of particular concepts because they spend more time with the student.

SA A U D SD

12. Generalist teaching can better meet needs relating to early adolescents' intellectual development.

SA A U D SD

13. Generalist teaching provides teachers with greater opportunity to integrate subject areas.

SA A U D SD

14. It is easier for teachers to keep abreast of developments in one or two subjects than in many subjects.

SA A U D SD

15. Specialist teachers are likely to over-emphasize the importance of their own subject and under-emphasize the importance of others.

SA A U D SD

16. Students in grades 6, 7 and 8 would benefit more from experiencing different styles of teaching by several teachers than from being taught by a generalist.

SA A U D SD

17. Elementary teachers should not be required to teach subjects in which they have little or no academic background.

SA A U D SD

18. Elementary school teachers are well prepared in terms of knowledge of content for all the subjects they are required to teach.

SA A U SD

19. Teachers have adequate opportunities for professional development in each specific subject in which they may feel the need to improve.

SA A U D SD

20. Teachers have an adequate amount of time for preparation in all subject areas that they teach in elementary schools.

SA A U D SD

21. Teachers sometimes feel the need to trade-off with others who are better prepared to teach math.

SA A U D SD

22. Teaching most of the day in one classroom has made it difficult for elementary school teachers to turn to one another for help and support.

SA A U D SD

23. For generalist teachers, the amount of time actually spent on a certain subject in class depends to some extent on their knowledge and interests.

SA A U D SD

24. Generalist teachers spend more time preparing for classes than do specialist teachers.

SA A U D SD

25. Organizing the curriculum in terms of broad program areas instead of traditional subject disciplines does not foster academic achievement.

SA A U D SD

26. Students in grade 6 through grade 8 should be provided with a sense of security by allowing them to spend most of the day with a single classroom teacher.

SA A U D SD

27. Specializing in one subject will result in a more reasonable workload for teachers at grades 6, 7 and 8.

SA A U D SD

28. Generalist teaching in grades 6, 7 and 8 does not increase teachers' workloads.

SA A U SD

29. The great majority of teachers of grades 6, 7 and 8 are thoroughly prepared for teaching science.

SA A U D SD

30. Keeping teachers' desks in their classrooms conveys the message that they ought to deal with professional problems on their own.

SA A U SD

31. Teachers actually learn to teach mathematics by teaching it, rather than through university courses.

SA A U D SD

32. Teachers will be better prepared to teach science in grades 6, 7 and 8 if they have taken several science courses at university.

SA A U SD

Part II

1. Please indicate the degree to which you believe that elementary school teachers (grade 6 through 8) are appropriately prepared to teach each subject:

	well prepared	adequately prepared	poorly prepared
language arts	_____		
mathematics			
science			
social studies	_____		
computers			
art			
music		_____	
phys.ed.			

2. Please indicate the grade level at which you think specialist teachers should be first required to teach each subject:

	Grade			
language arts	6	7	8	9
mathematics	6		8	9
science	6		8	9
computers	6		8	9
social studies	6		8	9
art	6		8	9
music	6		8	9
phys. ed.	6		8	9

Part III

Do you have any further comments about the issues raised in this questionnaire?

Thank you!

APPENDIX C

Open-ended Comments

Comments favoring generalist teaching:

A: I believe every teacher should be able to teach all academic areas to the same level that a specialist could. The training of elementary teacher is based on a specialized academic degree and a generalist's pedagogical background. This leads to areas being deficit.

B: We must be careful with generalities--Many specialists put forth little effort as do many generalists. The individual teacher's attitude is the most important factor in how well they are prepared for any subject. Therefore some generalists may well be better prepared than some specialists!

C: When you refer to specialist, a misconcept is a person having taken a course becomes a specialist. There are a lot of "specialists" who are certified but are not always qualified. Academia does not always qualify, but it certifies to do a job.

D: Questionnaire seems to be attempting to elicit responses that would support the idea of more specialist

teachers in elementary school (A concept which I don't particularly agree with).

A good teacher is a good teacher--and a poor teacher is a poor teacher--specialist or generalist is irrelevant at the elementary level.

E: The generalist is able to develop a better rapport with the student, a better knowledge of the student, a better comfort level for the student.

At some point in each subject the expertise required is too high to expect the generalist to handle. Therefore the benefits of having one or two teachers through the year must be forefitted, at that point, for specialists who have more time to spend on one subject.

F: I think you have to understand that many incoming teachers or "newer" teachers have more than one specialty area and may feel quite comfortable in teaching in both of these areas. I do believe this helps especially if they may be in areas that are opposite of each other on the spectrum, i.e. Visual Art/Music & Science/Mathematics.

I also feel the faculty of ed. should see more practice time for students in the clsssroom rather than a whole lot of theory 1st. Theory is also needed but-at most

it's better once they have some experience and ideas that they can now relate to the theories.

G: The important consideration is:
-some generalists are better than any specialist
-a bad specialist (just because you know math doesn't mean you can teach math) will affect <u>every</u> class negatively-a bad generalist only affects one
-it is not an easy choice.

H: How well you do in subject areas depends also on how well you like teaching the subject and the resources you have available to teach the subjects. You tend to spend more time on subjects you feel comfortable doing.

I. Elementary school teachers work very hard yet still seem to be underpaid by comparison to secondary school teachers. They work longer hours with fewer breaks. They are also forced to deal with more social issues & have more parental contacts than do their secondary counterparts.

J: The ideal situation would be that the generalist teacher would have a high degree of expertise in the subjects he/she is teaching. I believe it is better for

students' emotional/social growth in grades 6/7/8 to have a good generalist teacher rather than numerous specialist teachers.

K: There seems to be a bias in this questionnaire towards "specialist" teaching. I believe that content of curriculum is the easiest thing for a teacher to grasp and that knowledge of child development, teaching strategies and classroom management are far more important and difficult to learn; yet, they remain a neglected area in the study of education. All teachers are intelligent in academic learning; we all have degrees in various areas of the curriculum. Therefore, as intelligent people, we can learn new content areas fairly easily. It is the art of imparting this content in an interesting, motivating, and accessible way and of directing a safe, tolerant, co-operative classroom that is the true challenge of teaching.

L: I strongly disagree with specialists teaching separate subjects at Gr.6,7,8 level.

It is very difficult to judge whether a specialist or generalist will do a "better" job. It really depends on the individual teacher. Effective teachers search out and find the professional development they require.

M: In question #2 above I changed "should" to "may" because it depends on the expertise that you have available to you in the school. I changed "required" to "used" because I don't believe that the use of specialists should be mandated. A school should implement specialist teaching on a very limited basis. High schools should hire more generalist teachers.

N: Teachers who are not math or science specialists may feel inadequate but may seek help from curriculum partners, staff guidelines, documents, etc..

Generalist teachers better prepare students for coop learning, track their skills, study habits in a more consistent manner and end up dealing (helping) with the social & emotional aspects of their students. Specialist teachers do not have the time to deal with any of this.

O: Content at the elementary level is not that difficult. The problem is how many after school hours are spent working and preparing.

P: As a parent I was very pleased with the quality of teaching my three children received from JK to Grade 8 when

they attended an all generalist elementary school. I feel the continuity of having one generalist teacher far outweighed the benefits that would have arisen from having specialized teachers. I support the idea of teachers themselves trading with each other different topics throughout the year but this decision should be left to the teachers.

Comments Favoring Specialists

A: Grade 8 should the time when specialists should be introduced to students so they would be more prepared in gr.9.

B: Teachers should be able to teach the areas where they feel the most expertise. They excel in the areas and the students greatly benefit. It is ridiculous for a primary teacher to be placed in a grade 8 situation when his/her specialty and interest are with younger students.

C: As a confirmed "specialist", I believe that the more profoundly a subject is studied, the more it becomes apparent that links are to be found between many interlocking areas.

D: Approximately 50% of my teaching career, I taught in a K-8 school where Grade 7 & 8 was taught on a rotary basis with "specialists" teaching art, music, science, history & geog., phys.ed.. The system worked beautifully. Teachers "specialized" in the subject areas they held expertise in or an interest in. Workload was eased because preparation was eased. Subject enthusiasm was contagious between teacher and student!

E: Definitely math & science should be taught by specialists from Grade 7-on.

F: The degree of difficulty required up to grade 8 is not extensive--any dedicated teacher is able to teach English, Math, Science, Social Studies. Specialists should be used in Music, Art, Computers and Physical Education. Music, Art and Computers because they are areas that not every teacher will have expertise or training or interest in, and Physical Ed. because of the safety of the children.

G: -I believe that a person who has a specialist degree is valuable for proven interest and ability in a subject area and not for the specific knowledge gained through the high level university programs.

-In my opinion a person who took just a pass degree majoring in subject X, enjoyed that subject and had at least a B average in that subject would perform just as well in the 6-7-8 classroom as the specialist.
-The well rounded individual who enjoys most subjects and is intelligent should be used in the grades JK to grade 6 where more remediation is needed and the security of 1 teacher for the chikd is an issue.

H: Specialist vs. Generalist presents a real dilemma- weaker &/or "late bloomers" &/or students with weak organizational skills tend to struggle keeping subjects sparated and ordered. The other side of this is these people benefit from the teaching of a skilled specialist most.

Comments Related to Teacher Education

A: Perhaps it's time our Faculty of Education takes a good, long look at itself. If the faculty spent more time teaching prospective teachers how to teach all the subjects they will be required to teach, rather than some of the less useful topics that are covered, perhaps teachers would be prepared in all fields.

Personally, I think every professor at the Faculty of Education should teach every 5th year in the public system. This would insure relevant courses taught by professors that have some experience in the real world of teaching.

B: At the present time, university courses do not help much in preparing teachers for the classroom, except courses at the Faculty of Education. University courses have little or no relevance to what teachers and students need since most university professors have little or no training in teaching so usually do a very poor job.

C: It is important for teachers in Grades 6, 7, 8 to receive more support/professional development to support subject specific updates in curriculum integration and specific program delivering.

Students require expanded science programs to be able to meet the outcomes prescribed by the Common Curriculum. Also in the math area there are some "missing links" occurring in students' background info!

D: I see a real "struggle" between the two viewpoints--specialist teacher can have the best mastery over subject contents but generalists who stay with a group of students

can best meet their social-emotional growth. Which is more important? It is unrealistic to expect teacher to become specialists in all content areas, but I think a much better job could be done at teachers college preparing generalists. Too many lecturers/professors at faculties of education have been out of the classroom for far too long, and they don't have a clue about today's situations!