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The Relationship Between Experiencing or Having Observable Learning Difficulties and the Self-concept

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July 1998
35 pages

Abstract

The subjects for this study are ninth graders attending five different elementary schools in five different towns in Finland. They were given a comprehensive questionnaire to complete. The questionnaire consisted of questions about how the students felt about school success, school difficulties, special education, future plans, self perception of learning difficulties and self-concept.

The subjects were divided into four groups according to the following two criteria: (1) did they experience learning difficulties and (2) did they have observable learning difficulties. The self-concepts for each of the groups were compared. The self-concepts of subjects who did and did not receive extra support in school but were observed to have learning difficulties, were also compared.

The subjects who experienced learning difficulties have poorer self-concepts than subjects who did not experience and/or have observable learning difficulties. The difference was significant six of the nine subscales of the Offer Self Image Questionnaire for Adolescents (OSIQ). The clearest differences were on the subscales which measured self-perception of emotional strength when coping with the internal and external world. There were no differences on any subscale of the OSIQ between students who did and did not receive extra support in the school.

The results are discussed in terms of a multidimensional theory of the self-concept and neuropsychological interpretation of learning difficulties. Other differences considered between the groups were school success and extra support.

Keywords: self-concept, experienced learning difficulty, observed learning difficulty, adolescents

INTRODUCTION

The Finnish government of education has published a report about the situation of special education in Finland. According to the report, psychosocial and learning related problems have increased among pupils (Meriläinen, 1996). At the same time the amount of special education has decreased in all class levels while the size of the classes has become larger (Ihatsu, Ruoho, Happonen, 1996). Special education has mostly been directed to pupils with multiple difficulties. Multiple difficulties can be expected because support systems are not comprehensive enough and many pupils do not get the support they need (Eneberg, 1996).

Learning disorders (LD) can be considered a risk factor for human development (Hooper & Olley, 1996; Pennington, 1991; Sabornie, 1994; Spekman, Goldberg & Herman, 1993). Bender and Wall (1994), Ahonen and Lyytinen (1995) and Lyytinen (1995a) observed that learning disorders usually accumulate and as a result, achievements decrease and the risk for motivational problems increase dramatically. Pupils with LD also tend to develop social and emotional problems. Learning disorders are usually met without adequate understanding concerning their nature and appropriate means to deal with them (Peer, 1997). Therefore the pupils self-concept is threatened.

Public opinion is that formation of a positive self-concept is an essential part of the general socialization process and that school success and self-concept are in a reciprocal relationship (Hoge, Smit & Crist, 1995, Chapman, 1998). A number of studies on the learning process and self-concept suggest the importance of the self-concept. Chapman (1988) states in his comprehensive meta-analytic review of literature that there seems to be a moderate relationship between self-concept and school success. The relationship seems to be strong especially between the academic part of self-concept and school success. According to Chapman, the causal relationship between the self-concept and school success is not entirely explained.

Self-concept theory

There are many theories about the self and the self-concept. Toskala (1990) has summarized views based on cognitive theory about the self-concept. According to this theory, the self-concept is formed from the views one has about his or her self and about his or her ability, worth and goals. Remarkably these views direct our activities. According to the self-concept people employ behavioral strategies which help to maintain, develop and protect their self-concepts. The self-concept is closely related to self-esteem, which represents how much one directs positive feelings and thoughts to him- or herself.

Perhaps the most common theory was developed by Shavelson, Hubner and Stanton (1976) and Shavelson and Bolus (1982). They defined self-concept as a person's perception of him or herself. These perceptions are formed through one's experiences with and interpretations of one's environment and are especially influenced by reinforcements, evaluations by significant others and one's attributions for one's own behavior. According to the authors the self-concept can be defined by seven critical features:

1. Self-concept is organized, in that people categorize the information they have about themselves and relate the categories to one another.
2. Self-concept is multifaceted and the particular facets reflect a categorical system.
3. Self-concept is hierarchical, with perceptions of behavior as the base, moving to make inferences about the self in subareas to inference about the self in academic and non-academic areas, and finally inference about the self in general.
4. General self-concept is stable, but as one descends in the hierarchy self-concepts become less stable and more situationally specific.
5. Self-concept becomes more multifaceted when one develops from infancy to adulthood.
6. Self-concept has both evaluative and descriptive features.
7. Self-concept can be separated from other constructs such as academic achievement.

According to Shavelson et al (1976) and Shavelson and Bolus (1982) many things can influence self-concept. The influence of age (Cairns, McWhirter, Duffy & Barry, 1990; Harter, 1983; Marsh, 1989), gender (Cairns et al. 1990; Marsh, 1989; Marsh, 1993; Marsh & Hattie, 1996), significant others (Charlton, Mitchell & Elcock, 1993; Marsh & Hattie, 1996; Marsh, Smith & Barnes, 1993), reference group (Marsh, 1986; Marsh, 1987) and attributions (Nurmi, 1993; Nurmi, Onatsu & Haavisto, 1995; Nurmi, Salmela-Aro & Haavisto, 1995; Nurmi, Salmela-Aro & Ruotsalainen, 1994; Taylor & Brown, 1988) have all been studied as influences on self-concept by many authors.

Many different kinds of tests have been used to investigate the self-concept. Examples are: the semantic differential method, adjective lists, Q-sort technique, projective tests, sub-

jective human drawings and questionnaires (Keith & Bracken, 1996). Questionnaires are the most common method used because they accommodate most people who are literate, they are suitable for group administration and they measures one's conscious concepts about self. The most common problem for a questionnaire is the lack of proper operational definition and theoretical background.

Self-concept of students with learning disabilities

Many studies reveal that LD students have lower self-concepts than their normally achieving peers (Chapman, 1988; Kloomok & Cosden; 1994 Montgomery, 1994; Raviv & Stone, 1991). However, LD students do not usually have clinically low self-concepts (Chapman, 1988, Raviv & Stone, 1991). Some studies have been unable to find differences in self-concept between students with and without learning disabilities (Lewandowski & Arcangelo, 1994; Sabornie, 1994). One reason for discrepancy of results is that LD students are heterogeneous group (Durrant, Cunningham & Voelker, 1990). The definition of LD vary between the studies, which makes interpretation and generalization of results difficult.

In many cases, school problems are more visible in the academic side of self-concept than in a global self-concept (Ayres, Cooley & Dunn, 1990; Chapman, 1988; Cooley & Ayres, 1988; Kloomok & Cosden, 1994). According to Kloomok and Cosden (1994) 67% of LD students have positive global self-concepts, while 81% have negative academic self-concepts. Students with poor academic and global self-concepts experience more difficulties in school and they differ significantly in reading tests from those whose academic or academic and global self-concepts were positive.

Raviv and Stone (1991) compared self-concepts of LD students and normally achieving students by using a multidimensional self-image questionnaire. According to them, certain aspects of the self-concept are found to be lower in adolescents with learning disabilities. The characteristics, emotions, and expressions that were endorsed more frequently by LD students present a picture of relative passivity, perceived helplessness, dependency, lack of confidence both academically and socially, and a sense of inferiority and low self-worth. In addition, the LD students tended to report more feelings of insecurity, confusion, sadness and depression, tension, and difficulty with impulse control. LD students were also worried about their inability to control their external and internal world and they expressed more adjustment and behavioral problems.

Why do LD students have a lower self-concept than their normal achieving peers? Raviv and Stone (1991) looked at three factors which might help to explain the lower self-concept of LD subjects. The items that were related to failure in school belong to the first factor. The second factor was formed from one's experiences and feelings about being different. The third factor contained an assumption that a learning disorder can have an effect on the cognitive and social perception, and through them, to the development of a normal self-concept.

According to Cooley and Ayres (1988) students with a low self-concept had a tendency to explain their successes as a result of external factors and their failure by an inability or a lack of effort or motivation on their part. The study of Ayres, Cooley and Dunn (1990) confirmed their earlier observations that self-concept and attribution strategies were different between students with LD and without LD. The authors stated that the tendency to explain success by external factors and failure by lack of abilities are related to a lower self-concept. These attribution strategies were not related to achievement in school, but both had a tendency to lower the self-concept.

Rogers and Saklofske (1985) wrote that LD students had more external locus of control and their future academic expectations were lower than normal achieving students. Students with LD did not accept the responsibility for their own success and/or failure as much as normal achieving students did.

According to the research of Kloomok and Cosden (1994) the LD students who had good academic and global self-concepts perceived themselves as more intelligent, getting a higher level of social support, and as more athletic than those students who had good global, but low academic self-concepts. The students who had low global and academic self-concept differed the most from the other LD students, their self evaluations tending to go in a more negative direction.

The interpersonal feedback is an essential factor in the development of self-concept. Children who have reading and/or mathematical difficulties are more naturally in danger of becoming stressed at school. It is important that teachers understand LD students' primary problems in order not to cause unnecessary stress on the child, and to be able to give the needed support. Learning causes pressures for the child who is LD and increases their emotional vulnerability, which may begin to show up as a defensive hyperactivity (Lyytinen, Ahonen, Räsänen, 1994).

Since learning disorders are lifelong and failures easily accumulate, it can be assumed that students who do not achieve well in school will have decreasing self-concepts over the

years they attend school. According to the theory of Shavelson et al (1976), accumulation of failure in school will show up first in the academic self-concept and if the accumulation continues it can have an effect on the global self-concept.

However, the meta-analytic review of Chapman (1988) was not able to show that the self-concept of LD students gets lower as they get older. Although it seems that the difference between students with and without LD began in the second grade and is observable by the third grade, the difference between the self-concepts of students with and without LD did not change, as the students moved up in school.

The self-concept of third grade students is positive and there are no differences between students in regular classes and special classes or schools (Butler & Marinov-Glassman, 1994). However, by the time a student reaches fifth grade, there is a self-concept difference between students. Students in special schools had the most positive views about themselves, while low achieving students in regular classes and LD students in special classes tended to have negative views about themselves. Butler and Marinov-Glassman believe that the homogenous achievement level of students in a class may have a positive impact on the students' self-concept.

Class placement can be an explanatory factor in the differences in self-concepts (Butler & Marinow-Glassman, 1994; Kruger & Wandle, 1992; Raviv & Stone, 1991). The effect of class placement on the self-concept has given contradictory results to researchers. According to Chapman's (1988) review there were no differences in the global self-concept between mainstreamed or segregated LD students and normal achieving regular class students. However, students who had learning problems but did not get special education, had lower self-concepts than students who received special education. It seems that special class or school placement can have a positive effect on the academic self-concept but from the global self-concept point of view it is better if the students can spend at least some time in regular classes and get special support only for those subjects that are difficult for them.

Kruger and Wandle (1992) point out that the amount of special education might have a different kind of effect on the self-concept in different age groups. According to their research, young children who spent a lot of time in special education had a higher risk for a low global self-concept. This may be due to the self-concept of a young child being less differentiated than the self-concept of older students, of which cases the stigma of special education may be shown on the academic self-concept not on the global self-concept. The authors also mentioned about the general observation that students who spent a lot of time in special education had good academic self-concepts whereas students who spent only a little time in spe-

cial education had good global self-concepts.

One explanation for the variability of self-concepts between students in different kinds of class placements might be the different kind of reference group. According to the research of Raviv and Stone (1991) the severity of learning disorders was not an explanatory factor in the self-concept. The authors supposed that students with mild learning disorders were mostly mainstreamed so they compared themselves to normal achieving students. While students with severe learning disorders are placed mainly in special classes or schools, where they compare themselves to students with similar achievement levels.

When teachers' evaluations about their students' self-concepts were studied, Montgomery (1994) observed that teachers underestimated most LD students' self-concepts. According to Montgomery this supports earlier observations. She proposes that diagnostic labels and problems in school have influenced teachers' evaluations. Also, mothers of LD children have difficulties in evaluating their children's self-concepts. Coleman (1984) observes that mothers of LD children evaluated the self-concepts of their children lower than the children evaluated themselves. The author also noticed that children who had learning problems, but did not have an LD diagnosis, had lower self-concepts than children who had an LD diagnosis. However, mothers had a tendency to interpret the lack of a diagnosis as proof of normal school achievement. Therefore, they evaluated low achieving children with a better self-concept than the children did themselves.

Very little research can be found about the self-concept of pupils attending regular classes in Finland. Almost all the research on self-concept has been done on pupils in special classes and/or schools and in most cases the source of information came from teachers or parents (Strömmer & Jahnukainen, 1996).

Why is it so important to study self-concept and the learning disorders of students?

In a review of literature Prout, Marcal and Marcal (1992) state that learning disorders put students at risk for developing emotional problems. This does not mean that every LD student will have emotional problems, but that learning disorders have a negative effect on the development of children's personalities. According to Cohen (1985), everyone who has learning difficulties, regardless of the cause of the problems, will meet with psychological conflicts and distress.

Emotional problems seem to be more frequent in LD students than normal achieving students (Cohen, 1985; Huntington & Bender, 1993; Raviv & Stone, 1991; Spreen, 1989). Huntington and Bender (1993) in their review of literature came to the conclusion that LD students have a greater risk for depression and suicide than students without LD. They also noted that some researchers say the number of suicides among LD students is alarming.

Cohen (1985) thinks that depression and anxiety are common among LD students. Anxiety seems to be related to feelings of being different, not being good enough and being handicapped. Also LD students care about what other people think about them which causes anxiety. Many LD students assume that other people are aware of their handicap or know they are inadequate. Anxiety occurs mostly in achievement situations, which confirms the idea that avoidance of achievement situations is the easiest way to reduce anxiety. Feelings of helplessness, failure and humiliation might follow in this way of thinking.

Many studies give evidence that LD students have difficulties in adjusting to school with problems at all educational levels (Sabornie, 1994; Saracoglu, Minde & Witchesky, 1989). For example, the research of Sabornie (1994) points out that LD students experienced more loneliness than normal achieving students. LD students more often felt they were victims and threatened or physically assaulted. According to Sabornie victimization may relate to a lower level of social communication skills or that the relative passivity of LD students may provoke aggressive behavior by other students.

There is some research on social sensitivity of LD students. The research of Jarvis and Justice (1992) revealed that LD students are less sensitive than their normal achieving peers. Although social sensitivity increases with age, it was found that learning disabled adults are less sensitive than adults in a control group. The literature review of Hoy and Manglitz (1996) points out that learning disorders create a risk for social adjustment problems. Adults with LD are observed to have less social contacts, more need for guidance, greater risk for emotional problems, more anxiety and timidity, and weaker self-esteem than adults in control groups. However, the authors note that when social adjustment is studied, researchers must take into account the entire life-span. It has been found that satisfaction with life, adjustment to marriage, family life and the demands of work among over 30 years old LD adults is as good as the satisfaction and adjustment among adults without LD.

According to Werner (1993) a longitudinal study of students who had problems in fourth grade, indicated they also had problems in later grades. Students had problems with self-assurance, relationships, socialization, and an inability to take responsibility for their own actions. Problems in school appeared also in vocational education, because 60.0% of LD stu-

dents lacked vocational education, compared to 21.4% of the control group students.

When educational outcome of children with dyslexia was studied, Korhonen (1992) observed that over half of those who were diagnosed as having dyslexia as a child and less than quarter of the control group subjects studied in vocational schools. A little over ten percent of dyslexic children and over half of the control group subjects studied in the senior high schools (seventh and eight forms of secondary schools). Over half of the subjects, who had dyslexia as a child reported still having reading and writing problems, but their general adjustment was as good as the adjustment of the control group subjects. Subgroup analysis revealed that subjects who had visual-motor problems as a children often had disregard for the law.

Two Swedish reports revealed that dyslexia is much more common among people who have difficulties in finding jobs, who fail in adult education or on job training courses than in the population in general. The prevalence of dyslexia is 3-5% in the normal population, while in the unemployed population the prevalence was observed to be as high as 20% (Alm, 1995). Over 30% of prisoners had such severe reading problems that they could be classified as dyslexics (Alm & Andersson, 1995).

Research has shown that having learning disorders can create a risk for many kinds of problems. It can be assumed that in most cases the cognitive deficit behind learning disorders do not cause emotional or social problems by it self. Emotional and social problems can be seen as a consequence of lowered self-concept and self-esteem. The self-concept of LD students is especially threatened because they meet difficulties in managing their school work and often meet failures. The feedback from other people, for example teachers and parents as well as student's attributions about his or her own performance are an important factor in the formation of self-concept.

There is no research on self-concept which would also take into consideration students' own experience about their school difficulties or LDs. However, it is easy to imagine that the student's experiences of his/her difficulties are significant for the development of self-concept. As Shavelson et al (1976) and Shavelson and Bolus (1992) stated: The self-concept is persons perceptions of him/her self and these perceptions are formed through one's experiences with and interpretations of one's environment. Experience of learning difficulties might relate to low self-concept because both the self-concept and experience of learning difficulties are based on subjective perceptions.

PURPOSE OF THE STUDY

The purpose of this study is to investigate how various aspects of self-concept differ between the pupils who experience learning difficulties and those who do not experience learning difficulties regardless of do they have observable learning difficulties or not. The four groups which were compared to each others are:

1. Pupils who do not experience or have observable learning difficulties (control group)
2. Pupils who experience learning difficulties, but fail to show observable learning difficulties
3. Pupils who have observable learning difficulties, but who do not experience learning difficulties
4. Pupils who experience and have observable difficulties

The different aspects of school success between the groups is described and comparisons made between the groups in order to find a clue as to why some pupils experience learning difficulties while others do not. The differences in self-concept between pupils who did and did not receive extra support in school, but who were all observed to have learning difficulties, is also compared.

To address these questions, pupils were given a comprehensive questionnaire. The questionnaire consisted of questions about how students felt about his or her school success, school difficulties, special education, future plans, self perception of learning difficulties and self-concept.

METHOD

Subjects

Subjects were 449 ninth graders attending five different elementary schools in five different towns in Finland. Subjects average age is 15 years. There were slightly more boys than girls (50.9% vs. 49.1%) in the survey, not a significant difference.

In the autumn of the 1996 research and questionnaire was introduced to teachers studying educational guidance at the University of Jyväskylä. Five of the teachers volunteered to deliver questionnaires to their pupils. Questionnaires were sent up on request by the teachers. The number sent varied from 25 to 180. Due to the discrepancy in numbers, some schools were better represented than others in the study. The researcher distributed 525 questionnaires and 449 properly completed questionnaires were returned. The return percent was a 85.5%. The true return rate is assumed to be even higher, as the teachers asked for more questionnaires than they delivered to their pupils.

At the same time questionnaires were sent to the teachers, instructions on how to deliver the questionnaires and to guide the pupils in completing the questionnaire and answer the pupils' possible questions were sent. The teachers administered the questionnaires to one class at a time. It took about 45 minutes for each pupil to complete the questionnaire. After completing it, the pupil returned it to his or her teacher, who mailed the questionnaires back to the researchers.

Pilot study

In the autumn of 1996 a pilot study was conducted to find out how the survey questions were understood. Almost 50 pupils from two ninth grade classes from Suolahti answered the questionnaire. The researchers administered the questionnaires and monitored the class as the pupils filled them out. It took an average of one hour for the participants to complete the questionnaire.

The questionnaire worked quite well, but it took too much time to complete. By elimi-

nating a few questions the total pages were reduced from 16 to 13. This was an important move because many pupils seemed anxious about the number of pages. A few items from the self-concept questionnaire were eliminated, though eliminating items could weaken the reliability of the test. The test worked so well in the pilot it was assumed it would work well in the study although the number of items was smaller. Other changes applied to the survey organization and intelligibility of the questions. For example, critical words were highlighted on some of the questions by bolding them and word order on a few questions was changed.

Instruments

The first part of the questionnaire was developed by the researchers. The rationale behind developing a new questionnaire was that no already existing instrument satisfied the needs of the study. Most questions were formulated to investigate some specific problem assumed to be related to learning difficulties and school success. A few questions were borrowed from the Jyväskylä Longitudinal study of Dyslexia Parents' comprehensive questionnaire. Since self-concept is an important element of the study, questions that would assist with explaining the variability of self-concept were developed. Questions were also developed to help distinguish pupils who experienced learning difficulties and who had learning difficulties observed by the school system.

The first part of the questionnaire can be divided into four subparts: (1) school success, (2) extra support, (3) future plans, and (4) background questions. Questions varied in their type some were Likert and some multiple choice. A few short open ended questions were also present in the questionnaire.

The school success section of the questionnaire contained questions about the students' satisfaction with school success, and to what they attributed their success and/or failure, the age they learned to read, writing difficulties, severity of the difficulties and how pupils perceived their parents' attitudes toward their school attendance. From those who answered that learning was difficult for them were asked which school subjects were difficult, also did they receive help and if yes from whom. There was also a question where pupils were asked to compare themselves to their classmates and check each item on the list of subjects they feel they were worse at than their classmates.

The second subpart, extra support, investigated the amount of extra support students received, from whom the support was received and in which school subjects. Pupils were also

asked to evaluate how much they had benefited from the extra support and for what reason they received it. This subpart also asked if anyone had knowledge the subject had a learning disorder and, if so, who said it and what was said about the learning disorder. The pupils were asked about the experiences of early school years and how learning difficulties could influence other things in school and later education.

The future plans subpart of the questionnaire included questions about where pupils would apply to study after compulsory education and the reasons for that choice. The researchers wanted to know how fifteen years olds saw their future so they asked at what level they were going to continue their studies and how they saw themselves as 30 year olds? They were also asked how much they appreciate a good education, what occupation they wanted to pursue, and did they feel their abilities would allow them to achieve their desired goal.

Background questions included inquires about: age, gender, level of parents' education, their first foreign language, mathematics and gymnastics grades, and whether they attended a special class or school.

To measure self-concept, the Offer Self Image Questionnaire (OSIQ) was used. OSIQ is a widely used internationally known test (Patton & Noller, 1994; Raviv & Stone, 1991). The Finnish translation of the OSIQ was done by child psychiatrist Jari Sinkkonen. The Scale contains 130 self-report items. Unlike other self-concept instruments, the OSIQ does not yield a global score, but covers 11 areas of life which can be further clustered into five broad aspects of the self (Patton & Noller,1994; Raviv & Stone,1991). Offer measures self-concept widely, some might think it is a personality inventory.

Table 1
Subscales of the Offer Self- Image Questionnaire

Psychological Self	Impulse Control Emotional Tone Body and Self-image
Social Self	Social Relationships Morals Vocational and Educational Goals
Sexual Attitudes	Sexual Attitudes
Familial Self	Family Relationships
Coping Self	Mastery Emotional Health Superior Adjustment

In this study two subscales were not used: Morals and Sexual attitudes. Sixteen other items from the OSIQ were also eliminated. The adapted format of the OSIQ included 86 items and

yielded nine subscale scores.

Items of the OSIQ were worded both positively and negatively to guard against response bias. Each item required subjects to respond on a scale of 1 to 6, where 1 indicates the item describes me very well and 6 indicates the item does not describe me at all. Based on scoring details provided from the Offer et al. (1989) a low raw score implies positive adjustment while a high score implies poor adjustment.

In Patton's and Noller's study (N=216) internal consistency reliability (Cronbach's alpha) ranged from .59 to .84 for the nine individual subscales (for the same subscales that were included in this study). Mean and median were .68. In this study alpha ranged from .56 to .84 and the mean was .72 and median .71. In both studies the weakest internal consistency reliability was for the Superior adjustment subscale and the best was in Patton's and Noller's study for the Family relationships and in this study for the Emotional tone subscale.

Formation of four adolescent group on the basis of experienced and observed learning difficulties

The first criterion for group formation is based on the subjective feeling of the subjects. Subjects were divided on the basis of one question: "Do you feel that learning is difficult for you?" Most subjects (62%) did not feel they had learning difficulties, but (38%) did. Subjects who said that they had learning difficulties belong to the (ELDG) group in which pupils experienced learning difficulties.

The second criterion for group formation was an attempt to find those pupils who really had learning difficulties. This was very difficult on the basis of the questionnaire because pupils completed them and not the teachers or other specialists. Therefore, it was absolutely impossible to find only those pupils who had learning disorders of a neurological origin. Most researchers consider that learning disorders have a neurological origin (eg. Lyytinen, 1995a; Pennington, 1991; Cohen, 1985). The term observed learning difficulties was used to describe pupils who had learning difficulties according to the questionnaire. Whether the school problems were due to brain dysfunction or motivation or emotional problems or some other reasons could not be distinguish from each other. The major problem in using this kind of methodology is the absence of an objective assessment of learning difficulties. Pupils statements of their own problems and school achievement was the only criterion for identification.

A variety of criteria were used to find pupils to be included in the observed learning difficulties group (OLDG).

1. At least two of following statements had to be marked true for pupils included in the OLDG. I have problems so severe in some school subject that:
   I have not been moved up
   I had to do exams in the summer to get next to the grade
   I had grade 5 or below on my school report
2. Pupils who have gotten extra support in school were included in the OLDG. The term special education was not used, because support from the regular class teacher is also possible in Finland. Those pupils who have received extra support by their own request before an exam to get better grades were excluded. Those who wanted support, because they felt that they would not manage otherwise were included.
3. Pupils who felt that they have learned to read fluently and correctly later than their age group were included in the OLDG
4. Pupils who felt that they had severe writing difficulty were included in the OLDG
5. Pupils who were said to have learning disorder by someone were included in the OLDG

The first criterion about difficulties to advance to the next grade and low grades on school reports is based on an idea introduced by Berniger and Abbot (1994). Their idea was that pupils with learning difficulties had lower achievement levels than the average achievement level for their grade. The average achievement level of the class is the median of the standardization sample, and, by definition, 50% of pupils achieve above and 50% achieve below grade level. Financial resources are always limited so only those pupils whose achievement levels are lowest can be identified as having learning difficulties. The definition in this study takes into account those pupils whose school achievement is so low that they have difficulties moving up from a lower grade to an upper grade.

The biggest problem with using this idea is that it does not take into account those pupils whose achievement is near average level for the grade, but whose achievement does not correspond to their intelligence (Berninger & Abbot, 1994). To correct this the four other criteria mentioned above were identified. The second criteria of the list is based on the idea that the school system will identify those who have difficulties in learning and try to help them by enrolling them in special education. Since the school system is not perfect criteria number three and four were included to find those pupils who have learning difficulties, but who are not necessarily identified by the school system. Criteria three and four are based on pupil reports of his or her learning difficulties in reading and writing. Reading and writing problems were selected, because dyslexia and language related problems are the most common learning disorders identified (Pennington, 1991). The last criteria is quite clear, if the pupils reported that someone identified them as having a learning disorder it was included, because it is rare in Finland to give pupils such a diagnosis.

The pupils selected in the OLDG can meet more than one of the criterion. As a matter of fact it is possible that some pupils met every criteria established. The four groups were formed on the basis of how they met the criteria of the ELDG and OLDG.

Table 2
Formation of groups

Groups	ELDG Criterion	OLDG Criterion	% from entire sample	N	Name of group
Group 1	No	No	48.1	216	C(ontrol)
Group 2	Yes	No	20.7	93	E
Group 3	No	Yes	12.2	55	O
Group 4	Yes	Yes	15.4	69	E+O

As expected the group which did not have either experiencing or observable learning difficulties was the largest. This group is called the control group, with almost half of all the subjects (48.1%, n = 216) belonging to that group. The second largest group was E with the n = 93 (20.7%) and group E+O third with n = 69 (15,4%). Group O was the smallest with n = 55 or 12.2% of all subjects. Only 16 (3.6%) subjects could not be classified into any group.

Description of the groups

The groups were homogenous regarding gender and the fathers' educational level. By using a analysis of variance (ANOVA) no two group differed significantly from each other. The ANOVA results for gender were $F = .57$, $p > .05$ and the educational level of the father were $F = 2.54$, $p > .05$.

The groups differed in regards to school success. Average of school success were computed for three school subjects: Finnish, first foreign language, and mathematics. The average grade for the entire sample was 7.3, the lowest mean was on group E+O (6.3) and the highest on the control group (7.8). The average grades of school success on group E was 6.9 and on group O it was 7.1. The ANOVA test showed significant differences between groups $F = 39.40$, $p < .001$. The Post Hoc test revealed that group E+O and the control group differed significantly from all the other groups. Groups E and O did not differ significantly from each other. The following table summarize the information on group comparisons.

Table 3. Significant differences between the groups on school success			
Groups	**Group C**	**Group E**	**Group O**
Group E	***		
Group O	**	ns	
Group E+O	***	**	**
Note * = p<.05 ** = p<.01 *** = p<.001 ns = no significant difference			

Altogether eight (1.9%) pupils had not moved up in grade level, four of these pupils belonged to group E+O and four to group O. Thirteen pupils had to complete school work during the summer to advance to the next grade; eight of them belonged to group E+O and five to group O. From all the pupils 27.8% had received a grade five or below. A grade below five was received by 40.4% of group E pupils, 63.9% from group E+O pupils, 29.5% from group O and 12.1% from the control group pupils. These percentages reveal that pupils belonging to group E did not achieve very well in school, but their problems were not severe enough to get into group E+O.

During the first six school years 71 (14.2%) of the pupils remembered that they had received extra support in school. Over half of them (53.5%) had received extra support one hour per week, 9.9% received less than one hour per week and 25.4% had received two hours per week. Those receiving extra support more than two hours per week were 11.3% of the pupils. Fewer pupils got extra support during grades seven to nine. Although the amount of support was almost the same, it seemed that pupils who got extra support during grades seven to nine needed so much support that pupils whose difficulties were not as severe and who needed only one or two hours per week were dropped out of the extra support system.

Group E+O received the most extra support. During the first six school years 53.5% of group E+O pupils had been given extra support and the amount of support is even larger in group E+O in classes seven to nine where 60.7% of pupils of group E+O had been given extra support. In group O extra support dropped in grades seven through nine with 33.9% receiving extra support while 40.2% during the first six years of school. About 5.5% of pupils in group E and the control group had been given extra support. In these groups the amount of extra support is quite similar during the nine years of classes. There are significant differences between the groups on extra support during first school years ($F = 3.45$, $p<.05$) but not later school years ($F = 1.07$, $p>.05$).

Most pupils (71.8%) thought they had learned to read fluently at the same time as their age group. 21.2% of the pupils thought they learned before and 7.1% thought they learned

later than their age group. The figures above are quite similar to the figures of learning to read without error. 73.9% thought they learned to read without error at the same time as their age group, while 17.8% thought they learned before, 8.5% thought they learned later than their age group. Table 4 shows percentage proportions for pupils of each group in relation to how they remembered to learn to read fluently and without error when they compared themselves to their age group.

Table 4
Percentage proportion for pupils of each group about how they remembered to have learned to read compared to their age group

Groups	Learn to read fluently			Learn to read without error		
	Before %	Same time %	Later %	Before %	Same time %	Later %
Group C	26.1	73.0	0.9	21.6	77.0	1.4
Group E	17.6	78.0	4.4	18.7	74.7	6.6
Group O	6.7	68.5	20.4	5.7	71.7	22.6
Group E+O	18.8	62.3	18.8	13.2	64.7	22.1
Total	**21.2**	**71.8**	**7.1**	**17.8**	**73.9**	**8.5**

Only one (0.2%) pupil stated that she/he had such severe difficulties in writing that she/he felt it was a problem. Nearly fifty percent (45.6%) of the pupils had never experienced difficulties in writing. Spelling was difficult sometimes for 33.3% of the pupils, while as a child 20.8% said they had experienced of writing difficulties. Writing difficulties were more frequent in groups E+O and O than in group E or the control group. In group E and the control group a little over fifty percent had never experienced writing difficulties, whereas 25.4% of pupils in group E+O and 33.3% pupils in group O never had difficulties. Writing problems as a child were most common in group O, in which 33.3% of the pupils had such difficulties. Childhood writing problems were rarest in the control group (17.1%) and most similar to percentage proportion in groups E and E+O (20.9% and 22.4%). Fifty (50.7%) percent of pupils from group E+O experienced writing difficulties sometimes. Occasional writing difficulties were experienced by 27.5% of the pupils from group E, 33.3% of pupils from group O and 30.3% of pupils from the control group. Table 5 summarize information about writing difficulties.

Table 5 Experience of writing difficulties				
	Never **%**	**As a child** **%**	**Some times** **%**	**Severe difficulty** **%**
Group C	52.6	17.1	30.3	-
Group E	51.6	20.9	27.5	-
Group O	33.3	33.3	33.3	-
Group E+O	25.4	22.4	50.7	1.5
Total	**45.6**	**20.8**	**33.3**	**0.2**

It was more common than anticipated someone had been told that he or she had a learning disorder. Twenty-eight (6.7%) participants had been told they had learning disorders. Eighteen of these pupils belonged to group E+O and the other ten to group O. Therefore 27.3% of pupils from group E+O had been told they had learning disorders and respectively 18.5% of pupils from group O had been told they had learning disorders.

RESULTS OF COMPARISONS OF SELF-CONCEPT BETWEEN THE GROUPS

The differences and interaction between the groups and the genders were studied using MANOVA. It showed that there was no significant interaction between gender and the groups ($F = 1.28$, $p > .05$), however the main effects on both gender and the groups were significant (sex: $F = 5.68$, $p = .000$ and group: $F = 2.22$, $p = .000$).

Possible differences in self-concept between the groups was studied by using a one-way analysis of variance. According to the ANOVA test there was significant differences between the groups on every subscale of the OSIQ (Impulse Control $F = 8.60$, $p<.001$; Emotional Health $F = 5.03$, $p<.01$; Superior Adjustment $F = 9.67$, $p<.001$; Emotional Tone $F = 3.75$, $p<.05$; Body Image $F = 3.23$, $p<.05$; Social Relationships $F = 3.00$, $p<.05$; Family Relationships $F = 6.59$, $p<.001$; Mastery $F = 8.80$, $p<.001$; Vocational and Educational Goals $F = 5.80$, $p<.01$). Table 6 summarizes the mean and standard deviation from each of the groups.

Table 6
Mean and standard deviation for the groups on the individual scales of the Offer Self Image Questionnaire

	Group C		Group E		Group O		Group E+O	
Scale	**Mean**	**Std.D**	**Mean**	**Std.D**	**Mean**	**Std.D**	**Mean**	**Std.D**
Impulse Control ***	2.62	.80	3.07	.81	2.83	.96	3.07	.81
Emotional Health **	2.44	.72	2.74	.91	2.55	.79	2.77	.91
Superior Adjustment ***	2.82	.57	3.13	.62	2.91	.64	3.18	.62
Emotional Tone*	2.43	.83	2.72	1.08	2.46	1.04	2.79	.98
Body Image *	2.61	.76	2.84	.85	2.69	.80	2.91	.92
Social Relationships *	2.27	.69	2.42	.89	2.19	.69	2.53	.88
Family Relationships ***	2.32	.67	2.59	.81	2.47	.80	2.75	.88
Mastery ***	2.28	.68	2.61	.74	2.32	.77	2.74	.87
Vocational Goals **	2.23	.62	2.54	.79	2.33	.71	2.51	.77

Note * = p<.05 **=p<.01 ***=p<.001

Although according to ANOVA there were significant differences on each of the subscales, multiple comparisons of the groups failed to reveal significant differences between the groups on three subscales (Emotional Tone, Body Image and Social Relationships). Otherwise the scores of pupils in groups E and E+O were significantly higher (a higher score suggests poor adjustment) than scores of the control group. The Mastery subscale scores of group E+O were significantly higher than group O scores, on other scales there were no a significant differences between group E+O and O.

Table 7

Comparisons of mean differences of the groups on the individual scales of the Offer Self Image Questionnaire

Scale		Group C	Group E	Group O
Impulse Control	**Group E**	***		
	Group O	ns	ns	
	Group E+O	**	ns	ns
Emotional Health	**Group E**	*		
	Group O	ns	ns	
	Group E+O	*	ns	ns
Superior Adjustment	**Group E**	***		
	Group O	ns	ns	
	Group E+O	***	ns	ns
Emotional Tone	**Group E**	ns		
	Group O	ns	ns	
	Group E+O	ns	ns	ns
Body Image	**Group E**	ns		
	Group O	ns	ns	
	Group E+O	ns	ns	ns
Social Relationships x	**Group E**	ns		
	Group O	ns	ns	
	Group E+O	ns	ns	ns
Family Relationships x	**Group E**	*		
	Group O	ns	ns	
	Group E+O	**	ns	ns
Mastery x	**Group E**	**		
	Group O	ns	ns	
	Group E+O	**	ns	*
Vocational Goals x	**Group E**	**		
	Group O	ns	ns	
	Group E+O	*	ns	ns

Note * = p<.05 **=p<.01 ***=p<.001 ns = no significant difference, x = have used Tamahane method, because homogenity of variances can not be assumed, otherwise used Scheffe method.

Chart 1 shows the self-image profiles from all the groups. It reveals the profiles of groups E and E+O resemble each other while profiles of group O and the control group were similar. Control group pupils had the best self-image scores on almost every scale, except Social Relationships were group O had the best score. Group E+O pupils had the lowest self-image on every scale of the OSIQ.

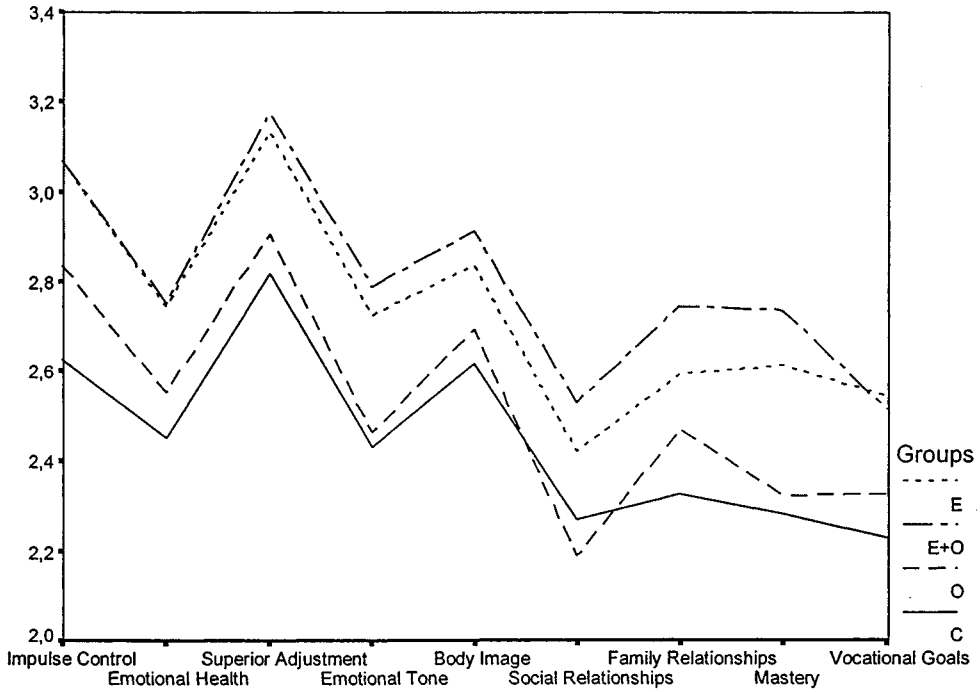

Chart 1 Self image profiles for the groups (higher scores suggest poor adjustment)

To test the effect of special education or extra support on the self-concept of the pupils who had observable learning difficulties, pupils in groups E+O and O were divided according to extra support. There were 119 pupils in these two groups and a majority of them (91) had received extra support at some time during their school years. The pupils who had received and had not received extra support were compared using a T-test. There were no significant differences on any of the subscales of the OSIQ (Impulse Control $T = 1.54$, $p>.05$, Emotional Health $T = 1.83$, $p>.05$, Superior Adjustment $T = 0.34$, $p>.05$, Emotional Health $T = 1.24$, $p>.05$, Body image $T = 1.76$, $p>.05$, Social Relationships $T = 0.88$, $p>.05$, Family Relationships $T = 0.76$, $p>.05$, Mastery $T = 0.85$, $p>.05$ and Vocational and Educational Goals $T = 0.44$, $p>.05$).

DISCUSSION

The data from this study provides evidence that when self-concept is treated as a multidimensional entity, certain aspects of the self-concept are found to be lower in pupils who experience learning difficulties (groups E and E+O), compared to pupils who do not experience learning difficulties although they may have observable learning difficulties (O and control group). It seems that experiencing learning difficulties is more significant when explaining the differences in self-concept than having observed learning difficulties, as there were no differences between group O and the control group on any of subscales of the OSIQ. There were significant differences between groups E and E+O and the control group on six of the nine subscales.

There can be many reason for why experiencing difficulties is more important for self-concept than having observable learning difficulties. One reason is the similar nature of self-concept and experience, and close connection between them. How does learning difficulties which one does not experience have an effect on one's self-concept? The other reason is that pupils who experience learning difficulties really have more severe difficulties in school than pupils who do not experience problems. Experiencing might be in relation to attribution strategies too. Tendency to explain failure as a result of external factors have different effect on self-concept than tendency to explain failure as a result of internal factors.

Because there were no differences on any aspect of the self-concept between pupils who did and did not receive extra support, one can conclude that extra support has little effect on the self-concept. However, it must be remembered that the number of the pupils who had observable difficulties, but who did not receive extra support, was rather small. The groups are also different in regards to certain aspects of school success. In most cases these differences did not help to explain why some pupils experience having school difficulties and others do not.

The average school success of group E+O is significantly lower and the success of the control group is significantly higher than the success of groups E and O but the last two do not differ significantly from each other. The question that arises is what causes the difference between groups E and O? The pupils in group E experience learning problems, but they do not have problems severe enough to get into group E+O. The pupils of group O do not experience problems but they have observable learning problems. A comparison of the groups gives the impression that language difficulties were more common among pupils in group O,

while students in group E may have difficulties in other cognitive areas or a low general achievement level. One reason for this impression is that grades of five are more common among pupils in group E than group O pupils (40.4% vs. 29.5%). Therefore pupils in group O generally have better grades, although five of them had to complete school work during the summer to advances for the next grade whereas no one from group E was retained. A second reason for this impression is that pupils in group O indicated more often than any other group that they had learned to read fluently and without error later than their age group. It may indicate they have or had specific reading problems. They also remembered more often than any other group that they had writing difficulties when they were children. These findings may also indicate that linguistic delay is more common among group O pupils than group E pupils.

One critical detail between groups is whether they received extra support. Only a few pupils in group E received extra support whereas many of group O students received extra support. This may mean, that low general achievement level do not cause teachers to react whereas specific problems do. It is hard to determine why group O pupils got extra support, but group E pupils did not, though both groups had similar school success levels.

The alternative explanation for receiving extra support might be the different kind of emphasis of separate cognitive abilities in learning at school. Most information that pupils receive in schools is based on linguistic processing (listening, reading or writing) and therefore linguistic difficulties might be seen by the teachers easier than difficulties in other cognitive areas.

Another interesting comparison are group E+O and O where both groups have observable difficulties in school, but only pupils in group E+O experience difficulties. According to the comparison of school success and figures concerning extra support, it can be assumed that pupils in group E+O have more severe school difficulties and within this group there may be pupils with multiple problems, their general achievement level is low and there might also be pupils with severe specific difficulties. The school success in group O is better than in group E+O. However, that cannot be the explanation for why pupils in group O do not experience learning difficulties because group E pupils with similar school success levels experience difficulties. This indicates that there must be other factors to explain the differences and one factor might be the self-concept of the pupils.

Because there was not a two-way interaction between gender and the groups, the groups can be studied as a whole without separating genders. According to ANOVA there were significant differences on each of the subscales of the OSIQ, but multiple comparisons of the groups failed reveal differences between the groups on those subscales, where significance

value of ANOVA test were >.01. The results of group comparisons are interpreted in a strict manner. The groups were seen to differ significantly from each other only those subscales where group comparisons were able to reveal significant differences, although ANOVA test revealed significant differences on every subscale.

Groups E and E+O differ from the control group on the Impulse Control subscale. This suggests that the defensive structure of pupils in groups E and E+O is organized poorer than the defensive structure of pupils in the control group. Control group pupils are more capable of warding off the pressures that exist in the external and internal world and can delay gratification.

It is interesting that group O pupils, who have observable learning difficulties but who do not experience difficulties, do not differ from any other group on the Impulse Control Subscale. This suggests that they are somewhere between the control group and the groups whose pupils experience learning difficulties. This might mean that pupils who experience learning difficulties meet failure more often than those who do not experience learning difficulties. Because failures cause frustration, pupils with continuous failures have a low frustration tolerance which shows up as impulsive acts. Attention deficit disorder (ADD) is a common cause for learning difficulties. It occurs most often as a co-morbid disorder with other learning disorders (Lyytinen, 1995b). According to Pennington (1991) and Lyytinen (1995b) ADD is a disorder of executive functions. Impulse control problems are one symptom of ADD with hyperactivity.

The Emotional Health subscale was previously named as psychopathology scale (Offer et al, 1989). Groups E and E+O differ from the control group, which means that control group pupils on the average scored better than pupils in groups E and E+O. However, this does not mean that the emotional health of the pupils in groups E and E+O is on a clinical level. The clinical level cannot be estimated without a proper clinical sample of adolescents.

From the observation that the emotional health score of pupils who experience learning problems is significantly poorer than the control group one can not conclude that the experience of learning problems would also cause emotional problems. Emotional problems can cause learning problems, as well, and emotional problems may diminish the adolescent's capacity to learn and achieve in school.

Again, groups E and E+O differed significantly from the control group on the Superior Adjustment subscale. This mean that pupils in the control group had a better functioning coping system scores and may deal with their environment more adequately. Most of the questions on this subscale are related to feelings about being with other people, views about

personal abilities and feelings aroused by new challenges. High scores on this scale conveys a picture of adolescents who feel as incompetent, not prepared to meet new challenges and not getting pleasure from being in the company of other people. He or she might fear the future and, have inferiority feelings and usually stop trying after one failure.

Group O pupils have a some what poorer self image score than pupils in the control group and a little better self image score than group E and E+O pupils on the Superior adjustment subscale, but the differences were not significant. Group O pupils seem to be better adjusted than pupils who experience learning difficulties. The same mechanisms which had helped group O pupils to adjust to their environment may help them to perceive their school difficulties as specific and not delimiting. When school difficulties are perceived to be not delimiting they do not cause feelings of having other difficulties and this may help to maintain other self-concept areas.

There were no significant differences between the groups on the next three OSIQ subscales: Emotional Tone, Body Image and Social Relationships. This suggest that the groups were quite homogenous with regards to affective control, structure of body image and object relationships and friendship patterns. The questions of the emotional tone subscale measure anxiety and depression. Cohen (1985), Huntington and Bender (1993), and Raviv and Stone (1991) claim that depression and anxiety are more common among the LD populations. This study was unable to confirm this observation. The results might be different when studying a system identified and/or diagnosed LD sample.

According to Raviv and Stone (1991), research on the body image was different between LD and non LD students. The questions of the Body Image subscale of the OSIQ are mostly related to physical changes at the age of puberty. It is hard to imagine what body image and learning difficulties have in common, but maybe adolescents' body images are so immature and vulnerable that difficulties in other self-image areas may have an effect to their body images. In this study there were no significant differences between any of the groups. The difference between the two studies may be due to different kinds of attitudes to nakedness and to a more realistic view about the human body from the Finnish pupils.

The studies concerning social sensitivity and adjustment of the LD student have given contradictory results (Hoy & Mangliz, 1996). Some research reveals while some have not differences in social sensitivity and adjustment (Jarvis & Justice, 1992; Sabornie, 1994; Lewandowski & Arcangelo, 1994; Montgomery, 1994). According to this and the Raviv and Stone (1991) research, there were not differences between the groups. Some researchers claim that LD pupils over emphasize their social relationships (Farard & Haubrich, 1981) or that LD

pupils are less capable of evaluating their social relationships because their social perception is less accurate than regular pupils (Jarvis & Justice, 1992).

Groups E and E+O differed significantly from the control group on the Family Relationship subscale of the OSIQ. This is not surprising because many parents have never even heard about learning disorders and they might think that their children do not achieve well in school because they are lazy or unconcerned about their school work. If parents do not understand their children's difficulties they may demand too much from their child. If the child is unable to satisfy his or her parents wishes this may result in a conflict at home. Pupils who have difficulties in school may be afraid of their parents reaction if they tell them about school difficulties, therefore open communication at home is prevented.

There were no differences between the groups when examining the pupils feelings about how encouraging their parents were, how interested in grades their parents were or how important their school success was to their parents. But there were differences when asked how satisfied their parents were with their school success. Groups E and E+O differed from the control group and there was also significant difference between groups E+O and O. This suggests that pupils experiencing learning difficulties feel that their parents were less satisfied with their school success than parents of those pupils who do not experience learning difficulties, but who might have problems anyway.

When parents are unsatisfied with their child's school success, the child might also feel that she/he has difficulties, but parents satisfaction with their child's school success might support the child's self acceptance making her satisfied with him/her school success. The research suggested a strong correlation between pupils satisfaction to their school success and their feelings about how satisfied their parents were to their school success (Pearson correlation 0.66, $p<.01$).

The Mastery subscale of the OSIQ assesses how well adolescents adapt to their immediate environment (Offer et al., 1989). The questions on this scale are related to the determination and courage to face different kinds of situations and problems. On this scale groups E and E+O differed from the control group and group E+O differed from group O. This might indicate that pupils experiencing learning difficulties have met many failures and are now afraid that they will easily fail again. Failure causes frustration and many pupils who have lots of failures might have a lower frustration tolerance and may give up easier than those who are used to success. The pupils may also think that the only way to avoid failure and frustration is to avoid situations where failure is possible and they try less.

The last scale of the OSIQ is Vocational and Educational Goals. This scale assesses

how effectively adolescents are able to work within the educational systems and whether they made plans for the future. Again, groups E and E+O differ significantly from the control group. The pupils in groups E and E+O are probably more uncertain about their skills and abilities and are afraid of failing again and therefore are uncertain of what they are capable of doing.

Finnish people usually think that senior high schools (seventh and eighth forms of secondary school) are springboards to universities, so pupils who plan to go to universities usually go to senior high schools first. Control group pupils 65.8% are going to continue their studies in senior high school, whereas only 20.3% of group E+O pupils are going to do so. Groups E and O are in the middle of these extreme values; 39.1% of group E pupils and 48.1% of group O pupils are going to go to the senior high school.

There is no evidence that future plans were more immature or more incomplete among pupils who had learning difficulties. If the figures about which level of education pupils are going to continue their studies are viewed, only 36.5% of the pupils in group O and 47.7% of pupils in group E+O did not know the level; whereas 53.5% of pupils in the control group and 56.7% of pupils in group E did not know the educational level. So group E pupils were the most uncertain about their future plans and O pupils most certain. However, pupils in the control group are most ambitious and have set the highest goals.

According to Kruger and Wandle (1992) special education may have a different kind of impact on different aspects of the self-concept. This study was unable to reveal any differences between those pupils who did and did not receive extra support, but who have observable learning difficulties. Some research supports the view that pupils attending special classes or schools have better self-concepts than low achieving regular class pupils (Butler & Marinov-Glassman; Chapman, 1988).

Special education might have positive effects on pupils' self-concept if it helps pupils to understand their difficulties. If pupils do not understand why they receive special education, it may have a stigmatizing effect and pupils are not motivated and do not benefit from it as much as they could if they were motivated to attend special education. Understanding school difficulties helps to explain them as a specific and delimiting, rather than global and stigmatizing.

In summary it can be said that there are differences in certain aspects of the self-concept between pupils who experience learning difficulties and pupils who do not experience and do not have observable problems. Quite consistently pupils experiencing and having observed learning difficulties have the lowest self-concepts. Pupils experiencing but not having ob-

served learning difficulties are a little better in some aspects of self-concept, but they still have lower self-concepts than pupils who do not experience difficulties, but still have observable learning difficulties. Pupils who do not experience difficulties and do not have observable learning difficulties have the best self-concepts scores on almost every subscale of the OSIQ.

When looking at the five broader clusters of the OSIQ (introduced in the instrument chapter found on page 14), it notes that pupils in groups E and E+O differ from the control group on every subcale that belongs to the cluster Coping Self. This suggests that the pupils in groups E and E+O had a poorer self-perception of emotional strength in coping with their internal and external world than the control group. This might be a consequence of dysfunctional attribution strategies among pupils who experience learning difficulties.

Nurmi (1993) and Nurmi, Onatsu and Haavisto (1995) have studied attribution strategies of underachievers. Nurmi et al. (1995) observe that underachievers have a tendency to use a self-handicapping attribution strategy, which mean that they have relatively poor self-concepts and high levels of failure expectations and, because they are afraid of failure, behave task irrelevantly. The task irrelevant behavior is usually used as an excuse when faced with failure. The self-serving attributional bias is not completely missing, but in long run this kind of strategy can be very harmful to it users.

The other attribution strategies that are harmful are learned helplessness and failure-trap strategy (Nurmi, 1993). Negative self-concept, failure expectations and lack of self-serving attributional bias are common for both of them. The difference between them is that people who use a failure-trap strategy behave task irrelevantly, whereas learned helplessness people do not do anything because they think that they cannot have an effect on the final outcome. It would be interesting to research attribution strategies of these four adolescent groups by comparing their cognitive and behavioral strategies.

Some results should be interpreted cautiously. First, the separation of pupils who have observable learning difficulties might be unreliable, because it was based on pupil's own statements, feelings and memories about their school difficulties. Second, it must be remembered that the relationship between the self-concept and learning is probably cyclic and there are a lot of other things which have an effect on them, but which are not studied in this research. For example some people might have tendency to see things in a negative fashion. Third, there may be alternative explanations for the differences of the self-concept other than experiencing and having observed learning difficulties. For example, differences may be caused by social acceptance, intelligence or significant others' attitude toward school.

This research inspired a lot of questions. The casual-relationship between the self-concept and learning difficulties is poorly known. Longitudinal research will be needed to answer that problem. The first measurement of self-concept should be done before the child begins school and before he or she has met failures in learning. The neuropsychological test should be used to separate pupils with and without LD, although pupils feelings about their school difficulties are important to take account as this research revealed. Longitudinal research would enable the observations about the development and stability of self-concept to occur.

Other tests than self-concept and neuropsychological tests should be included into the research to help answer questions like: What should happen in school so that pupils with learning difficulties do not experience they have difficulties? What is the teachers' and/or parents' role in supporting the development of children's self-concept? How can we enhance these pupils' poor self-concepts? The strategies which help to enhance self-concept could be studied via experimental research. It could resemble a group treatment plan for those who have poor self-concepts and instructions to teachers and parents to help them to use methods which help to enhance the child's self-concept and avoid things that would weaken the self-concept. In future research attention should be directed to experiencing learning difficulties because this research indicates it is more relevant in studying self-concept than observation about learning difficulties

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