DOCUMENT RESUME

ED 386 561 CE 069 800

AUTHOR	Lasonen, Johanna
TITLE	A Case Study of Student Self-Assessment in Upper Secondary Education.
PUB DATE	Jul 95
NOTE	18p.; In: "Contemporary Issues of Occupational Education in Finland," p199-215 (University of Jyvaskyla).
AVAILABLE FROM	Institute for Educational Research, University of Jyvaskyla, P.O. Box 35, 40351 Jyvaskyla, Finland ($40 complete volume).
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Educational Change; *Evaluation Criteria; Foreign Countries; Independent Study; Job Skills; Program Evaluation; Program Implementation; Secondary Education; Secondary School Students; *Self Evaluation (Individuals); Student Attitudes; *Student Evaluation; Vocational Education
IDENTIFIERS	*Finland

ABSTRACT

A study evaluated to what extent self-assessment is being implemented in those Finnish institutions of general and vocational upper secondary education that were running pilot projects of youth education reform. It explored how student self-assessment is associated with the concept of self-directed learning and reflective expertise and reviewed historical and current perspectives of self-assessment research. The study asked 346 Finnish upper secondary school students to do the following: evaluate the implementation of self-assessment in upper secondary school education, identify the criteria students use in self-assessment, and identify their expectations concerning the assessment reform. Findings indicated that 50 percent of all respondents had received self-assessment assignments. As a part of teaching, student self-assessment was implemented more frequently in vocational courses than in general subjects classes. Students most often compared their learning outcomes to educational goals and to the requirements of their future occupations. The respondents' expectations concerning the assessment reform focused on encouragement, rewards, and equality. They also expected more individual and thorough feedback from teachers than they had received in prior assessments. (Appendixes contain 2 data tables and 35 references.) (YLB)

A CASE STUDY OF STUDENT SELF-ASSESSMENT IN UPPER SECONDARY EDUCATION

Johanna Lasonen

ABSTRACT

The study focuses on student self-assessment with the following research objectives: (1) evaluating the implementation of self-assessment in upper secondary school education, (2) identifying the criteria students use in self-assessment; and (3) identifying their expectations concerning the assessment reform. The findings revealed that fifty per cent of all students had received self-assessment assignments. As a part of teaching, student self-assessment was implemented more frequently on vocational courses than in general subjects classes. Students preferred to compare their learning outcomes to educational goals and the requirements of their future occupations. Implications for utilizing self-assessment in the acquisition of higher order workplace competencies are discussed.

Descriptors: *self-assessment, upper secondary education, assessment reform*

OVERVIEW

Student self-assessment serves as a starting point for examining various kinds of learning. Learning is an essential element of educational effectiveness and quality. In self-assessment, students review not only their learning outcomes but also the experiences that lead to those outcomes. Student self-assessment helps to form habits of self-reflection that will carry over into other learning and working situations. In self-assessment, the learner reviews and judges what was done, how it was done, and how it is related to the learning process and product. The learner also reviews her/his own evolving self as a learner. A framework of self-assessment is introduced in Figure 1 (see Astin, 1993, p. 10).

A FRAMEWORK OF SELF-ASSESSMENT	LEARNING OUTCOMES	
	AFFECTIVE	COGNITIVE
INDIVIDUAL Inner states	Self-esteem Values Attitudes Beliefs Motivation Aspiration	Knowledge level Thinking skills Basic skills Special talents Achievements
SOCIAL Skills Behaviour Competencies	Habits Hobbies Human relations Citizenship	Career plans Performance

Figure 1. *Individual and Social Factors Related to Student Self-Assessment of Learning Outcomes*

Self-assessment of the outcomes of affective and cognitive learning takes place at the individual level but reflects, at the same time, the individuals' social environments with their events and people. Learning often occurs in social contexts.

The theoretical framework of the concept of self-assessment is connected with qualitative evaluation, self-directed learning and reflective expertise. The paper first describes how student self-assessment is associated with the concept of self-directed learning, motivation, and the model of knowledge structure. The second section gives an overview of the historical and current perspectives of self-assessment research. The third section discusses the findings, drawing conclusions and proposing implications for the integration of self-assessment activities and higher order workplace competencies.

Theoretical Framework

Self-assessment is considered a part of the affective and cognitive dimensions of learning. Making progress in learning leads to improved self-assessment and decision-making skills. As an element of self-directed learning self-assessment is included in the learning process and product (Koro, 1993; Varila, 1990).

Banta & associates (1993) found that senior college students regarded self-assessment as a skill and a readiness. According to Boud (1991), students need to master critical thinking skills if they are to be able to assess their learning and ways of thinking on their own. Self-directed learning is a process

where students voluntarily set their learning goals and plan their studies. Vanila (1990) linked self-directed learning to such learning characteristics as consciousness of goals, planning abilities, performing and evaluation skills and an openness to new challenges. Zimmerman's (1989) concept of self-regulated learning depends on metacognitive, motivational and functional activities. He suggested that self-regulated learning involves the use of self-regulated learning methods, positive causal self-attributions and a commitment to educational goals. By espousing goals and defining personal objectives students take a stance on the methods with which they can reach their objectives. Learning motivation deals with goal orientation.

In addition to goals, learning motivation is related to values, expectations and other affective dimensions. Learners have a certain value orientations with regard to the meaning of goals and assignments. Learners' expectations of performance outcomes involve the demands they set for themselves concerning gaining their objectives. Making plans for gaining goals is influenced by self-efficiency beliefs (Schmuck, 1985). Self-efficiency beliefs are beliefs that individuals hold concerning their ability to cope with certain tasks in particular situations. A belief that performance levels are related to one's actions makes individuals set higher expectations of success and persistence. If they perceive no relationship between performances and outcomes, it may lead to passivity, fear, lack of aspiration and underachievement. Weiner (1985) refers to the phenomenon as 'learned helplessness'. People's beliefs differ from their ways of self-appraisal while coping with situations and performing tasks. Feelings and beliefs concerning self are connected with knowledge structure.

The model of knowledge structure has also been adapted to cover the construction of self-knowledge (Markus & Nurius, 1987). Self-knowledge may be organized on knowledge structures similar to those underlying scientific conceptions and content knowledge. Different conceptions of self (achieving self, caring self etc.) are revealed in various situations. People develop different self-representations through their experiences and self-reflection. Students and especially professionals have many possible selves. The model of knowledge construction shows the central role of self-reflection in conceptualizing occupational activities (see Dewey, 1938; Schön, 1983; 1987).

Advanced strategies of knowledge acquisition, metacognition and self-regulation contribute to the effective utilization available information. Processing knowledge includes metacognitive and self-controlling functions. Metacognition is the conscious control and regulation of one's own knowledge and skills learning (Peterson, 1988). The aspect of consciousness in metacognition indicates the learners' knowledge of three variables concerning persons, tasks and strategies which influence performance and the ability to cope with various situations.

A consciousness of personal variables is knowledge about one's own cognitive performance. Through perceived competence and self-concept, this aspect of metacognition is related among other things to motivational structures (Cantor & Kihlström, 1987; Markus & Nurius, 1986). Knowledge of the

task variables includes information that enables learners to evaluate the difficulty and requirement levels of their assignments. Strategy variables involve learners' knowledge of and skills in problem-solving methods and their applications.

In addition to knowledge of persons, tasks and strategies, self-control and the self-regulation of occupational learning activities are essential in professional growth. Brown et al. (1983) determined three general processes through which metacognitive controlling functions are developed from childhood - planning, monitoring and self-regulation. Such activities are related to metacognitive knowledge.

Monitoring, self-regulation and self-control are basic functions of metacognition (Cantor & Kihlström, 1987). Monitoring serves to direct attention to performance and self-assessment with a view to finishing tasks. Self-regulated activities comprise behavioral changes through monitoring. The ability to control comprehensive personal and environmental conditions leads to good learning results. Metacognitive and self-regulative assignments are helpful for students engaged in acquiring occupational content-based and social knowledge.

Research on student self-assessment has seldom dealt with the issues of in-depth learning and motivation. Leino-Kilpi (1993) is an exception with her studies on nursing education among health care students.

Research on Student Self-Assessment

International research on student self-assessment has mainly focused on the learning of college students (Boud, 1991). Finnish studies have also examined vocational school students (Leino-Kilpi, 1993). Research on the issue dates from the 1930s (Diggory, 1966; Sumner, 1932). A more systematic focus on self-assessment emerges in the 1960s.

In the 1960s, researchers took up students' predictions of the grades they would receive from their teachers (Doleys & Renzaglia, 1963; Shirts, 1968). Falchikov and Boud (1989) showed in their meta-analytic study that students could quite accurately predict their grades. Beginners tended to overestimate and senior students to underestimate their grades as compared to the grades the teachers actually gave them.

Other areas of self-assessment emphasized in the 1970s were work tasks and expertise in teacher education and medicine. Students' content knowledge and self-assessment were connected to professions and job tasks. Boud (1991) noted that the educational function of student self-assessment was realized in the 1970s.

Heron (1988) associated the concept of student self-assessment with occupational upgrading and experiential learning. He suggested that expertise requires skills of self-assessment and a willingness to engage in continuous learning.

In Finland, reflective teaching and self-reflection have been studied by Järvinen (1989, 1990), Kohonen (1989) and Ojanen (1990). Järvinen was influenced by Kolb's model of experiential learning, and by Schön, Mezirow and Jarvis's approaches to adult education. Australian research on self-assessment and Finnish research on self-reflection have focused on professional education and growth in persons in higher education whether as teachers or as students.

Studies on student self-assessment conducted by Leino-Kilpi (1993), Räisänen (1994) and Linnakylä (1994) have concentrated on general upper secondary and vocational students' learning in Finland. Hänninen (1994) did a theoretical study on self-assessment as an aspect of holistic and continuous learning.

Most investigations on student self-assessment may be characterized as evaluative studies of groups of students, teachers or methods. Research findings have added to our knowledge of how to improve some dimensions of the educational process and product. Missing are longitudinal studies on the effects of self-assessment in skills development.

Because assessing one's own performance helps to focus mental processes on the activities necessary for attaining short- and long-term goals, it is important to know whether the learning of self-assessment is systematically involved in teaching and education.

A SURVEY OF THE IMPLEMENTATION OF SELF-ASSESSMENT IN FINNISH UPPER SECONDARY-LEVEL EDUCATION

Purpose of the Study

The purpose of the study is to evaluate to what extent self-assessment is being implemented in those Finnish institutions of general and vocational upper secondary education that are running pilot projects of the youth education reform. The ongoing Finnish upper secondary education experiment extends the range of opportunities for completing a vocational diploma, the upper secondary curriculum or a combination of the two through the collaboration of vocational institutions and general upper secondary schools. Sixteen localities are taking part. A wide-ranging experiment in vocational higher education is also in progress, with 22 temporary polytechnics participating. The experiment covers eighty-four per cent of all the subject fields taught in occupational higher education (Lampinen & Numminen, 1994). This initiative will also produce greater compatibility with the credentialing systems and standards being used in the other European Union countries. The purpose of

this reform is to raise the standard of higher vocational studies and to devise new programmes leading to higher occupational diplomas through collaboration between vocational and general education institutions (Ministry of Education, 1994). The objective of both is to explore the possibilities of diversifying education and creating flexible and individualized programmes. The strategies adopted for accomplishing the goal can be characterized as moving away from state mandates to local control with a loosening of rigid curriculum requirements. Inter-institutional cooperation helps to lower the barriers between different forms of education, offering more options to students and aiming to meet changing demands for knowledge and qualifications. General upper secondary school students can take courses at vocational schools and vocational school students can take advanced general courses. Some students may also choose a combination of advanced general and vocational courses that will provide them with a vocational diploma as well as a certificate of matriculation.

The Finnish upper secondary education reform aims at attaining educational policy goals in preparing the youth for workforce (Lasonen & Frantz, 1995). Policy goals at the level of educational structure, however, can hardly be achieved if the reform is not brought to the level of implemented curriculum. The essential question is how well students learn in the reformed environments. Assessing learning is an important component of teaching. Student self-assessment helps to ensure that the learners are themselves made responsible for their learning.

The assessment of learning may be based on an assumption that all students should acquire the same knowledge (Wiggins, 1993). However, intellectual performance is personal and individual. As a part of learning assessment, student self-assessment provides information about the students' individual ways of thinking and problem-solving.

Traditionally, student assessment seems to focus on outcomes and achievements. However, student self-assessment is not only a method of evaluation but also an essential part of the learning process.

In Finland, individual aspects of assessment have received official consideration since the 1980s. According to the national guidelines for curriculum design, assessment should help students to monitor their levels of skills and knowledge. Student assessment in vocational schools should be criterion-referenced and include self-assessment (Ammattikasvatus, 1987).

This study sought to answer the following questions, addressed to 346 Finnish upper secondary school students:

① To what extent is student self-assessment implemented?

② What criteria do students use in self-assessment?

③ What do the students expect from the assessment reform?

It was expected that the findings would provide feedback for developing student assessment as well as enriching our understanding of the functions of student self-assessment.

Research Procedures

The qualitative data was collected through focus group interviews and a questionnaire with open-ended items. The first step was an analysis of guidelines for assessment included in the current Finnish educational policy and curriculum guidelines. The results of the analysis served as the starting-point for developing the protocols used in the focus group interviews and the questionnaire. The respondents of the interviews and the questionnaire were vocational and general upper secondary school students from three Finnish school districts where pilot projects of the upper secondary school reform were in progress. The school districts were selected from among the sixteen rural areas running pilot projects and from three different municipalities to form a geographically representative sample. The institutions of vocational and upper secondary education visited were located in the northwestern, eastern, and southern areas of Finland.

The data was collected in May 1994 in Hämeenlinna, Tornio and Joensuu. The questionnaire included 24 open-ended items. The respondents wrote down what they saw as the most important ideas. Most of the students addressed one theme in their responses.

Findings

Sample

The students' characteristics are presented in Tables 1 and 7 (see Appendix 1). The subjects of this study were identified through purposive sampling. Data was collected from those students who voluntarily agreed to complete the questionnaire (N=346) and to take part in focus group interviews (N=26). Most students were in their first and second year at upper secondary school. Almost a half of the students (46%) were making use of the opportunity to have courses across study lines and upper secondary schools. These students will have experience of a range of assessment methods as applied by different teachers.

Table 1. *Upper Secondary Students' Gender, Year of Studies and Course Choices in Three Towns*

Variable	f	%
Town		
Hämeenlinna	171	49.4
Joensuu	47	13.6
Tornio	128	37.0
Total	346	100.0
Upper secondary schools		
Vocational	256	74.0
General	90	26.0
Total	346	100.0
Gender		
Female	240	69.4
Male	106	30.6
Total	346	100.0
Year of studies		
1. year	168	48.6
2. year	154	44.5
3. year	24	6.9
Total	346	100.0
Course choices		
Inside own school	20	5.8
From the other schools	139	40.2
No courses outside own major subject	185	53.5
No answers	2	0.5
Total	346	100.0

Implementation and criteria of self-assessment

The respondents thought that self-assessment contributes to their learning. The first and second research questions asked the respondents to estimate to what extent student self-assessment is being implemented in connection with the upper secondary education reform, and to describe the criteria with

which they compared their learning outcomes. Tables 2 to 5 show the frequencies of self-assessment situations, personal success indicators, perceived advantages of self-assessment and learning criteria among the respondents. Table 2 shows self-assessment situations identified by students.

Table 2. *Self-Assessment Situations Identified by Students (N=346)*

Occasion	**f**	**%**
During examinations	84	24.3
After finishing task	69	19.8
At teachers' request	49	14.1
During writing assignment	14	4.0
When studying	12	3.5
When engaging in sport	11	3.2
During work practice	10	2.9
Never	10	2.9
After failure	4	1.3
Do not know	7	2.0
No answers	76	22.0

During examinations students have compared their knowledge and skills with the required criteria without teachers' guidance. Self-assessment assignments seemed to have a connection with hands-on training situations. About 40 per cent of the respondents connected self-assessment with teaching periods where physical performance was required. About half the students thought that self-assessment situations and assignments were not systematically organized.

Responses to the question: "How do you know that you have improved in your learning?" are presented in Table 3.

Table 3. *Personal Recognition of Success (N=346)*

Indicators of personal success	**f**	**%**
Better grades	146	42.2
Improved understanding and greater initiative	85	24.6
External feedback	40	11.6
Positive feelings	25	7.2
Do not know	9	2.6
No answers	41	11.8

More than half the respondents learned about their success from external indications. One third of the students monitored their success on the basis of enhanced understanding and initiative, and of positive feelings.

Table 4 shows what the respondents thought about the advantages of student self-assessment.

Table 4. *Perceived Advantages of Self-Assessment (N=346)*

Advantage	f	%
Learning to learn and to analyze oneself as a learner	81	23.4
Learning how to study further	73	21.1
Learning to know oneself	27	7.8
No advantages	25	7.2
Raising self-esteem and initiative	24	6.9
Do not know	13	3.8
No answer	103	29.8

About 52 per cent of the respondents considered continuous learning skills an advantage of self-assessment. The following response categories could be regarded as skills required in life-long learning: learning to learn, analyzing one self as a learner, getting to know how to study further and learning to know oneself.

Table 5 shows the frequencies of the criteria with which the students compare their learning outcomes. Each criterion was coded as a dummy variable. The correlation coefficients between criteria are presented in Table 8 (see Appendix 2).

Table 5. *The Students' Self-Assesment Criteria*

Criterion	Mentioned f	Mentioned %	Not mentioned f	Not mentioned %	In sum %
Learning objectives	273	78.9	73	21.1	100.0
Requir. of future occup.	201	58.1	145	41.9	100.0
Expected grade	142	41.0	204	59.0	100.0
Friends' achievement	96	27.7	250	72.3	100.0
Teachers' guidelines	71	20.5	275	79.5	100.0
Parents' expectations	17	4.9	336	95.1	100.0
Other[1)]	10	2.9	336	97.1	100.0

Notice1)
The other criteria include ambition, prior learning, developmental stage, course demands, personal goals, and the entrance requirements of certain schools.

Learning objectives and the requirements of future occupation were the most favoured criteria among the respondents. These criteria were related to some extent (r=.106; p.05; see Appendix 2). The correlation coefficient between friends' achievement and learning objectives was negative (r=-.186; p.001).

Students' expectations concerning the assessment reform

Discussions of student assessment and assessment reform are sometimes quite emotional. Table 6 shows the responses to the question: "What kind of assessment improves your learning?"

Table 6. *Students' Expectations Concerning the Assessment Reform (N=346)*

Good assessment	f	%
Encouraging and stimulating	116	33.6
Individual	74	21.4
Fair	32	9.2
Provides thorough feedback	25	7.2
Strict	16	4.6
Versatile	15	4.4
Do not know	17	4.9
No answers	51	14.7

More than half the respondents thought that encouraging, stimulating and personal assessment improves their learning. Feedback was mentioned as a part of assessment and as necessary for learning.

Missing responses indicated that students were not used to evaluating teaching. The more critical thinking the question required, the more missing responses were found.

CONCLUSIONS AND RECOMMENDATIONS

The findings revealed that fifty per cent of all respondents had received self-assessment assignments. As a part of teaching, student self-assessment was implemented more frequently on vocational courses than in general subjects classes. Students most often compared their learning outcomes to educational goals and to the requirements of their future occupations. The respondents' expectations concerning the assessment reform focused on encouragement, rewards and equality. They also expected more individual and thorough feedback from teachers as compared to prior assessment.

Student self-assessment provides elements for individuals' life-long developmental process. Self-assessment integrates the affective and cognitive dimensions of learning outcomes, including individual and social aspects. Self-assessment is not restricted to school activities and situations but is expected to continue after school years. Self-assessment skills can help people to cope with changes and to grow along with changes.

Through self-regulation and consciousness-raising, student self-assessment improves the use of metacognition. It can promote the learning of thinking skills, one of the most important goals of education.

In order to recognize their thinking habits and to master objectives students must become conscious of their own thinking. Regardless of how well people are taught and trained, their success in life depends on their personal decisions.

Student assessment has been short-sighted and external, aiming to make students to achieve grades. If students assessed their learning from the perspective of long-term goals and internal feedback, they could consciously train their metacognition. As a result, they become self-aware, active and thoughtful performers rather than passive observers of their learning.

Research on student self-assessment has tended to disregard its functions of promoting learning and educational processes. Studying the motivational aspect and higher-order workplace competencies of learning promoted by student self-assessment requires a longitudinal research design.

The limitations of this study are related to the fact that it is a preliminary investigation of the complex issues of self-assessment. It is left with the

following unanswered questions, reflecting the gaps in studies of student self-assessment:

- To what extent are the criteria and nature of self-assessment changing in the various phases of skills development?
- What kinds of meanings related to learning process do students attribute to self-assessment in their narratives?

REFERENCES

Ammattikasvatushallitus. (1987). *Oppilasarvioinnin ohjeet ammatillisia oppilaitoksia varten* [National guidelines for implementing student assessment at vocational schools and colleges]. Helsinki: Opetushallitus.

Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers* (2nd ed.). San Francisco, CA: Jossey-Bass.

Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco, CA: Jossey-Bass Publishers.

Banta, T. W., & Associates. (1993). *Making a difference*. San Francisco, CA: Jossey-Bass Publishers.

Boud, D. (1991). *Implementing student self-assessment* (2nd ed.). (HERDSA Green Guides No. 5). Sydney: University of Technology.

Brown, A. C., Bransford, J. D., Ferrera, R. A., & Campione, J. C. (1983). Learning, remembering, and understanding. In J. H. Flavell & E. M. Markman (Eds.), *Handbook for child psychology: Cognitive development* (Vol. 3, pp. 77-166). New York: John Wiley & Sons.

Cantor, N., & Kihlström, J. (1987). *Personality and social intelligence*. Englewood Cliffs, NJ: Prentice-Hall.

Dewey, J. (1938). *Experience and education*. New York: Kappa Delta Pi.

Diggory, J. C. (1966). *Self-evaluation: Concept and studies*. New York: John Wiley.

Doleys, E. J., & Renzaglia, G.A. (1963). Accuracy of student prediction of college grades. *Personnel and Guidance Journal, 41*(6), 528-530.

Falchikov, N., & Boud, D. (1989). Student self-assessment in higher education: A meta-analysis. *Review of Educational Research, 59*(4), 395-430.

Heron, J. (1988). Assessment revisited. In D.J. Boud (Ed), *Developing student autonomy in learning* (2nd ed.) (pp. 77-90). London: Kogan.

Hänninen, R. (1994). *Itsestäänselvä itsearviointi: Itsearvioinnin kehittyminen ammattiin valmistumisen näkökulmasta* [Self-evident self-assessment in occupational learning]. (Tutkimuksia No. 9). Jyväskylä: Jyväskylän yliopisto, Täydennyskoulutuskeskus.

Järvinen, A. (1989). Experiential learning and professional development. In S. Weil & I. McGill (Eds.), *Making sense of experiential learning. Diversity in theory and practice*. Milton Keynes: Open University Press.

Järvinen, A. (1990). *Reflektiivisen ajattelun kehittyminen opettajakoulutuksen aikana* [Development of reflective thinking skills during teacher training years]. (Julkaisusarja A. Tutkimuksia No. 35). Jyväskylä: Jyväskylän yliopisto, Kasvatustieteiden tutkimuslaitos.

Kohonen. V. (1989). Eräitä ajatuksia opettajien ammatillisen täydennyskoulutuksen kehittämisestä yhteistoiminnallisena oppimisena [Some thoughts on developing teachers' professional upgrading through cooperative learning]. In Y. Yrjönsuuri (Ed.), *Koulutuksesta ammatilliseen kasvuun* (pp. 79-97). Helsinki: Opetushallitus.

Koro, J. (1993). *Aikuinen oman oppimisensa ohjaajana* [Adults as self-directed learners]. (Jyväskylä Studies in Education, Psychology and Social Research 98). Jyväskylä: University of Jyväskylä.

Lampinen, O., & Numminen, U. (1994). *Nuorisoasteen koulutuskokeilut ja ammattikorkeakoulukokeilut* [Reporting experiments of youth and polytechnic education in 1993-1994]. (Opetusministeriö, raportti No. 3). Helsinki: Yliopistopaino.

Lasonen, J., & Frantz, N. (1995). *A comparison of workforce preparation policies in the United States and Finland.* Paper presented at the Vocational Education Special Interest Group of the American Educational Research Association, April 1995, San Francisco, California.

Leino-Kilpi, H. (1993). *Kehittävän opiskelija-arvioinnin kokeilu: Oppimispäiväkirja itsearvioinnin tukena* [Qualitative evaluation: Learning diaries as a method of student self-assessment]. Loppuraportti II. (Opetushallituksen julkaisusarjat. Raporttisarja 1/1991). Helsinki: Valtion painatuskeskus.

Linnakylä, P., Pollari, P., & Takala, S. (toim.). (1994). *Portfolio arvioinnin ja oppimisen tukena* [Portfolio as a tool assessment and learning]. Jyväskylä: Jyväskylän yliopisto, Kasvatustieteiden tutkimuslaitos.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist, 41*, 954-969.

Ministry of Education. (1994). *Higher education policy in Finland.* Helsinki: Nykypaino Oy.

Ojanen, S. (1990). *Ohjausprosessi opettajankoulutuksessa* [The tutoring process in teacher education]. (Täydennyskoulutusjulkaisuja No. 5). Helsinki: Helsingin yliopisto, Lahden tutkimus- ja koulutuskeskus.

Räisänen, A. (1994). Opiskelija-arvioinnista [On student assessment]. In M-L. Clarkson & L. Walls (Eds.), *Virikkeitä ammatillisten oppilaitosten johtamiseen ja itsearviointiin* (ss. 54-63). (Opetushallituksen julkaisusarjat. Raporttisarjat 43/1993). Helsinki: Painatuskeskus.

Shirts, M. A. (1968). The college grade contract. *The Educational Forum, 32*(4), 456-458.

Schmuck, D. R. (1985). Self-efficacy and classroom learning. *Psychology in the Schools, 22*, 208-223.

Schön, A. (1983). *The reflective practitioner. How professionals think in action.* London: Temple Smith.

Schön, A. (1987). *Educating the reflective practioner.* San Francisco, CA: Jossey-Bass.

Sumner, F. C. (1932). Marks as estimated by students. *Education, 32*, 429.

Varila, J. (1990). *Itseohjautuvan oppimisen käsitteellistä ja empiiristä tarkastelua* [Self-directed learning as a theoretical and empirical concept]. (University of Helsinki, The Lahti Centre for Research and Training No. 2). Helsinki: Yliopistopaino.

Weiner, B. (1985). An attributional theory in achievement motivation and emotion. *Psychological Review, 92*(4), 548-573.

Weiner, B. (1986). *An attributional theory of motivation and emotion*. New York: Springer-Verlag.
Wiggins, C. P. (1993). *Assessing student performance: Exploring the purpose and limits of testing*. San Francisco, CA: Jossey-Bass Publishers.
Zimmerman, B. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81*, 329-339.

APPENDIX 1

Table 7. The Students' School, Major Subject and Grade Point Average (N=346)

Variable	f.	%
High school		
Vocational school	256	73.9
Upper secondary school	90	26.1
Major subject		
Electricity	11	3.2
Food industry	16	4.6
Catering services	95	27.9
Craft and design	57	16.0
Social work	16	4.6
Health care	23	6.6
Business	30	8.7
Maths and sciences	30	8.7
Languages and humanities	19	5.5
Academic & vocational	19	5.5
No answers	30	8.7
Grade point average (scale 4 low - 10 high)		
less than 7.0	30	8.7
7.0-7.6	101	29.2
7.7-8.4	114	32.9
8.5-9.9	81	23.4
No answers	20	5.8

APPENDIX 2

Table 8. *Correlations between Assessment Criteria among Upper Secondary School Students (N=346)*

Variable	F28	F29	F30	F31	F32	F33
F28 Objectives						
F29 Friends' achievement	-.19***					
F30 Teachers' guidelines	.02	.01				
F31 Expected grade	.03	-.02	-.06			
F32 Parents' expectations	-.11*	.13*	.02	.00		
F33 Future professions	.11*	-.13*	.03	.08	.03	
F34 Other	-.12*	.09	-.05	-.07	.04	-.01

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