

INSTRUCTIONS FOR  
BACHELOR'S THESIS  
AND  
MATURITY TEST

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# 1 INTRODUCTION

A bachelor's thesis is an important part of a polytechnic degree. Polytechnics offer degree programmes in various subjects, and each degree programme has its own history and field-specific working methods.

The Rector of Oulu University of Applied Sciences has appointed a working group (Rector's decision of 15 March 1999/ Article 164) to draw up instructions for bachelor's theses. The objective is to harmonise the conventions applied to bachelor's theses and the related reports. Common instructions for the whole Polytechnic will hopefully increase co-operation between different fields of training.

The instructions created by the working group on the bachelor's thesis are based on the report of the previous working group on bachelor's thesis (comprising Olli Jauhiainen, Principal Lecturer, Leena Jussila, Principal Lecturer, Anne-Maria Haapala formerly Korteniemi, Head of Public Relations, Elsa Manninen, Principal Lecturer, Tuomo Pesola, Degree programme Director, Helena Siira, Principal Lecturer) (Report of the working group on bachelor's thesis, 1998). When preparing the instructions, we aimed for consistency and considered the special features of different fields of training, which was a great challenge. The working group was active for six months and had to discuss many issues at length. Subsequently, the instructions have been circulated for comments within the polytechnic, and we have attempted to take all proposed improvements into consideration. The process of drawing up instructions for bachelor's theses is still continuing. The instructions will also be published on the Internet (at <http://www.oamk.fi/opiskelijalle/opinnaytetyo/>) and they will be updated as necessary.

The working group on the bachelor's thesis hopes that the instructions provide help both for authors and tutors of bachelor's theses, and for other partners, thereby promoting the objectives of Oulu University of Applied Sciences.

Oulu, August 2000

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## 2 OBJECTIVES OF A BACHELOR'S THESIS

Provisions on bachelor's theses are found in the Polytechnic Act and the Polytechnic Decree (Polytechnic Act of 3 March 1995/255, art. 2; Polytechnic Decree of 3 March 1995/256, art. 2; Degree regulations of Oulu University of Applied Sciences of 19 January 2000).

As a bachelor's thesis, students develop and demonstrate their ability to carry out practical expert tasks connected to their field of study (Polytechnic Decree of 3 March 1995/256, art. 7). The bachelor's thesis is a learning process in which the theory of the field of study, as well as problem solving and development methods and working methods of the field of study are applied in practice. It combines different areas of the students' training, thus deepening their professional competence; it improves their skills at seeking information, evaluating the worth of information, and combining pieces of information with a view to problem solving; it creates new skills and teaches students to present the results of their work clearly, as well as improving their co-operation skills.

Through bachelor's theses, Oulu University of Applied Sciences satisfies its regional development obligation and supports the emergence and development of regional co-operation networks. Bachelor's theses are by nature a development task, increasing the students' professional skills and serving the development needs of business life. The results vary depending on the field of study and the topic of the work. The result may be a new or an improved working method, product, process, an event or a work of art. A bachelor's thesis may also be a development plan or other report, including development proposals, which advances development in the field. It is also an important item in a student's portfolio, which will help him/her find employment.

According to the degree requirements of the polytechnic (Bases for recognition of, and compensation for other studies, Board of Oulu University of Applied Sciences, 21 June 1999/ art. 88), a bachelor's thesis or a study attainment that is part of a student's previous studies cannot be accepted as a bachelor's thesis.

### 3 PROCESS OF PRODUCING A BACHELOR'S THESIS

The process of producing a bachelor's thesis is facilitated by co-operation between the author, the client and the tutoring teacher. A client's representative and the tutor can form a steering group for the bachelor's thesis. However, the student is mainly responsible for the bachelor's thesis. The process of producing a bachelor's thesis has a clearly defined objective, schedule and resources. It consists of the following main stages, which partly overlap chronologically:

- selection of topic, definition of task and finding a tutor for the work
- preparation and presentation of a plan for the bachelor's thesis
- carrying out a development task
- writing a bachelor's thesis report
- presentation of the bachelor's thesis, feedback discussion
- assessment
- maturity test.

Usually the student should acquire the topic for the bachelor's thesis from representatives of business life in the region, or from another partner. The role of the tutor is, together with the client and other partners, to direct the process and, at the same time, promote interaction between the polytechnic and the business life in the area.

The student chooses a topic for the work, and draws up a description of the work. Based on this description, the topic will be approved or rejected. If the topic is approved, one or more tutors are assigned for the bachelor's thesis.

At the beginning of the project, the student draws up a plan for the bachelor's thesis, which includes both the main stages of the project and its schedule, and presents the plan to his/her tutors or the steering group, and, where possible, also to other students. The student can specify and update the plan as the work progresses. The plan for a bachelor's thesis must also specify the dates when the student will report on progress that has been made. It is advisable that the student keeps a sufficiently detailed journal of his/her work and reports on progress as planned.

The stages of implementing the development task depend on the nature and scope of the project. Students begin to familiarise themselves with the task when they negotiate the topic with the client and other partners. The scope of the project becomes clearer as the process

progresses, and the original task may even change. The definition of the task and the decisions made must be justifiable from a professional perspective. It is advisable to be creative when seeking new solutions and weighing up different alternatives. The majority of materials for the report are accumulated during the implementation stage of the project.

Bachelor's theses always include a written report. The report is a written presentation about the bachelor's thesis, prepared in accordance with these instructions.

A completed bachelor's thesis is presented to all parties concerned, and a feedback discussion is organised as part of assessment. The student must know the assessment criteria at the beginning of the process of producing a bachelor's thesis.

## **4 PRESENTATION OF THE BACHELOR'S THESIS, AND FEEDBACK DISCUSSION**

Once completed, bachelor's theses are presented in a way suitable for the nature of the work. The author(s) of the bachelor's thesis together with the client and the tutor agree on the way the work is presented, as well as where and when it is presented. The tutor, other students, the client and other partners must be given sufficient time to familiarise themselves with the work.

The purpose of the presentation of bachelor's theses, and the feedback discussion is to show that the author(s) of a bachelor's thesis are able to orally present the main points of their work, answer any questions asked by participants, justify their decisions and both give and receive constructive criticism.

Feedback discussions also aim to give all participating students the opportunity to actively take part in discussions of bachelor's theses. Also, feedback discussions aim to improve the students' ability to distinguish what is essential about the process of demonstrating your learning and to make them learn to analyse the work critically, as well as becoming used to presenting their views.

After their presentation and feedback discussion, students may make small revisions to their reports. The student must be informed of the grade given for the bachelor's thesis, within a three weeks period following the student's submission of his/her bachelor's thesis for assessment (Examination regulations of the Oulu University of Applied Sciences of 7 October 1999).

## 5 ASSESSMENT OF BACHELOR'S THESIS

The most important purpose of assessment is to support and advance learning. Essential points to the assessment of a bachelor's thesis are the effectiveness of the study efforts, the learning process, the relationship between tutoring and learning, and the work's contribution to the development of the student's field of study. Assessment is based on the achievement of objectives set for the bachelor's thesis.

The assessment of a bachelor's thesis covers the whole working process: the whole process of producing the bachelor's thesis, and the improvement of the work during the process, the output, the report, tutoring and feedback discussions, the learning process and self-assessment. Due to different approaches, subject matters and methods, bachelor's theses and the working processes connected with them differ from one another, which is why the following points of assessment can be used flexibly and their importance can be critically evaluated, depending on the form of each bachelor's thesis.

- **Selection of topic:** topicality and the topic's connection with development needs in working life and with the student's professional goals.
- **Plan for the bachelor's thesis:** choices made and their justifications.
- **Starting points for the bachelor's thesis:** theoretical and practical command of the topic under development, the appropriateness of its content, the selection of a viewpoint and concepts, as well as their definitions, the diversity, relevance and quality of the information used and the description of the author's own thinking and critical processing of their source materials.
- **Development task:** the definition of the scope of work, and justifications for it, organisation of work.
- **Carrying out the development task:** grounds for and the suitability of the approach and the working process, logical nature and justifiability of the thought process, grounds for choosing the work methods, acquisition of information for the development task, and the relevance and

reliability of methods used in the acquisition of information, the effectiveness and relevance of information processing and analysis, and, in the case of a music or dance production or another type of artistic production, the technical and artistic implementation of the production.

- **Results and conclusions:** achievement of objectives set for the bachelor's thesis, presentation and explanation of conclusions, internal logic of the working process, assessment of results/development proposals/final product, and its ability to be usefully exploited and significance.
- **Discussion:** student's assessment of his/her own learning process, assessment of the work's utilisation potential, presentation and analysis of possible follow-up projects.
- **Tutoring and feedback discussions:** active participation.
- **Report:** appearance and language.

One or more tutors assess each bachelor's thesis (assessment form attached as Appendix 1). The student's self-assessment (Appendix 2) and any journal or diary produced by the author of a bachelor's thesis belongs to the scope of the assessment of the process. Students evaluate their own learning process and give feedback in order to develop the bachelor's thesis process. The student's self-assessment form is used for the purpose of assessment.

An assessment of a bachelor's thesis may be requested from a representative of the client (Appendix 3) and from other students. Students participating in tutoring sessions and feedback discussions evaluate the work orally. These evaluations are taken into account when bachelor's theses are graded, but the tutor awards the grade. Bachelor's theses are graded on a scale 0–5 (Examination regulations of 7 October 1999). If a group submits a bachelor's thesis, different members of the group can be given different grades if justification for this is provided.

Students have the right to appeal to the polytechnic for reassessment of the grade they have been given for their bachelor's theses (Polytechnic Act of 3 March 1995/255, art. 17), and they are entitled to access information on how the evaluation criteria were applied to their bachelor's theses (Polytechnic Decree of 3 March 1995/256, art. 23).

When designing the evaluation form and other forms, the working group has made use of the forms used by the School of Business Studies (Käytännön ohjeita opinnäytetyön tekijälle, 1999).

## **6 CLIENT CONTRACTS AND COPYRIGHT**

### **6.1 Client contracts**

Bachelor's theses are usually made for a client who can be either a company or a corporation. A co-operation agreement is signed with the client, and, for example compensation for costs and fees are agreed on in such an agreement.

Bachelor's theses incur telephone, photocopying, mailing and supply costs, as well as travel, material and information acquisition expenses, which must be agreed upon (Appendix 4). The student is liable to income tax on the fee agreed between the client and the student, even though the agreement does not constitute an employment relationship.

### **6.2 Copyright**

Copyright protects the results of creative, intellectual work. The Copyright Act (8 July 1961/404) provides copyright to a creator of a written or an artistic work (Copyright Act 1:1). The Copyright Act provides protection for, for example, oral presentations, works of film and photographs, maps, drawings and computer programs.

Bachelor's theses are public. They can be protected by copyright only if they are sufficiently independent and original. Bachelor's theses do not automatically satisfy this requirement.

A work protected by copyright may be quoted and cited in review and to the extent required by the purpose. Individuals may also produce a few copies for private use, but this does not, however, apply to computer programs (Copyright Act 2:12). On the basis of the right of free presentation, the work may be used in connection with, for example, teaching (Copyright Act 2:14).

The author is the original holder of copyright. Copyright is not restricted, for example, by the fact that an employee has created the work as part of his/her work duties, received payment for the work and used his/her employer's equipment. This does not, however, apply to computer programmes (Copyright Act 3:40b). Copyright may be transferred either wholly or in part (Copyright Act 3:27), but an agreement must be made in the case of such a transfer.

Other immaterial rights such as patents, (Patent Act 1967/550), protection of designs (Act on the Protection of Designs 1971/221), and trade marks (Trademark Act 1964/7) must also be taken into consideration.

## 7 BACHELOR'S THESIS REPORT

The form of a bachelor's thesis at Oulu University of Applied Sciences can vary. It can for example be a trade fair, a computer program, a multimedia application, a product development plan, teaching material or a performance or a work of art. All bachelor's theses include a written report regardless of the form that the bachelor's thesis takes. The minimum requirement is that a report describes the purpose of the work, its planning and preparation process, the implementation process and conclusions. The language of the bachelor's thesis report does not have to be Finnish (Polytechnic Act of 3 March 1995/255, art. 10).

The bachelor's thesis report is public once it has been accepted as a study attainment. Trade or professional secrets are not to be included in the actual bachelor's thesis report that will be assessed. They should be kept in the reference material. (Rector's decision 30.6.2004 § 45)

### 7.1 Report structure

The extent of the report may vary, but the following general instructions, based on Hirsjärvi, Remes and Sajavaara's *Tutki ja kirjoita* (2000), are to be followed when writing the report. The organisation of most reports comprises three areas. One advantage of this basic structure is that readers can easily find what they are looking for in the report. The report structure and the order of presentation may vary, depending on the development task and the method used. The main parts of a report are usually:

- an initial section , including a title page, abstract and a table of contents, whose purpose is to serve the reader
- the body of the work, including an introduction, an analysis and a description of the development activity undertaken, results and conclusions
- the final section, including appendices, a list of references and possibly an index and an index of persons. (Hirsjärvi et al. 2000, 232.)

In addition, the bachelor's thesis plan may also be attached to the report.

## **Report cover**

The author's name and the title of the Bachelor's thesis should appear on the cover of the report. The title of the thesis must be short, concise and informative. If necessary, a subtitle may be used. The logo of Oulu University of Applied Sciences should appear in the bottom right corner of the cover (Finnish logo for theses written in Finnish and English logo for theses written in English). The name(s) of the author(s) and the year of publication should appear on the spine of the report. Words on the cover should always be written out in full, no abbreviations should be used. (Appendix 5.)

The report is bound in a blue hardcover binding. A pocket may be included on the inside of the cover, to store for example a CD. Texts are printed in white both on the cover and on the spine, if the report is thick enough to have a spine.

## **Title page**

The layout of the title page (Appendix 6) must follow the style of the cover. The following information should appear in the bottom right corner of the title page: author's name, title, term of completion, name of degree programme and the name Oulu University of Applied Sciences. The text is justified on the left.

## **Abstract**

An abstract is an independent section that describes the essence of the bachelor's thesis, its purpose, methodology and results in a concise but exact manner. The abstract must describe the contents of the report clearly so that even a reader who does not read the original report gets an idea of what the work deals with. At the end of the abstract, you must include keywords (usually 1–7 words) characterising the subject matter for use with search systems. The abstract should contain the following information:

- bibliographical information: author(s), name of report, year, length, format, availability (to be marked at the beginning of the abstract page)
- the development task
- working methods used
- central results

- conclusions
- possibly a review of the bachelor's thesis.

The abstract will be available in the library and it will be published on the Internet by student's approval. It is an efficient instrument for disseminating information, and its purpose is to help the reader, browser or listener to decide whether or not they need to read the report itself. An abstract must give enough information for persons who are not previously familiar with the field. Abstracts are also disseminated to a variety of data systems.

The abstract must be based on the concepts used in the bachelor's thesis report, and it must consist of complete sentences. No unestablished abbreviations or terms, or tables, graphic presentations or references to sources should be used. The abstract must be one page long. It is to be written in the language of the report. If necessary, students may write an additional abstract in a foreign language. The student will ensure that the foreign language abstract is linguistically correct either by having it proofread or by writing it as part of their language studies.

### **Table of contents**

The table of contents reveals the disposition of the report. It gives the reader a general outline of what the report contains and how the issues discussed in it are related to one another. In the table of contents, the headings and subheadings of all chapters must be in exactly the same form as they appear in the text.

The table of contents shows the page numbers where each chapter begins. In addition to actual text headings, the starting pages of the list of sources and the appendices must also be included in the table of contents. The title may be either CONTENTS or TABLE OF CONTENTS, and it must be presented in the same way as the other headings in the report. Main headings start from the left margin, while the starting point of subheadings is usually aligned with the first character of the previous heading (a higher level heading). However, such gradation of headings is not strictly necessary (Hirsjärvi et al. 2000, 396.)

### **Introduction**

The introduction introduces the subject of the bachelor's thesis and is intended to arouse the reader's interest. The introduction may describe the background of the topic selection, the viewpoint, or the purpose or function of the work and its justification. Additionally, the author may

establish the topicality and importance of the project, the benefits of the work to the client or to the profession, or the significance the subject matter has had on the development of the author's professional abilities. The introduction is not a summary of the whole work as such a summary can already be found in the abstract. The introduction may include a short review of the literature used.

The introduction is followed by a definition of the knowledge base that clarifies the purpose of the work and defines the development task. The process of carrying out the bachelor's thesis is described next. This section reports on the process of seeking answers to questions arising from the definition of the task. This section enables the reader to follow the process of the bachelor's thesis and assess the appropriateness of the author's choices and solutions.

### **Development task, results and conclusions**

The publication of the results and outcomes of bachelor's theses vary depending on the development task undertaken. The results may also be organised in many ways. Conclusions, which can also be presented in connection with the results, are drawn from the results achieved, and these are to be considered with regard to the starting point of the development task. The conclusions show how the bachelor's thesis has changed or increased information in its sector, and how the results can be utilised in practice.

### **Discussion**

The discussion section analyses the topic, the implementation of the bachelor's thesis, as well as ethical questions, the appropriateness of the choices and decisions made, and the author's own learning experience and any new questions that may have arisen. In the discussion, the author presents his or her own comments and views on the development activity taken.

### **List of references**

The list of references must include all sources that are referred to in the report. The report text must include references to the sources used, and these sources must be found in the list of references at the end. The sources used must be relevant to the purpose of the bachelor's thesis, and only primary sources should be used.

## **Appendices**

Materials that it is not necessary to place in the text itself to further the reader's understanding of the issues discussed but that are, nevertheless, referred to in the text may be included as an appendix. Such materials include items used for the acquisition of information, for example questionnaire forms. Appendices follow the list of references. They are numbered and titled. If there are many appendices, a list of appendices may be placed at the beginning of the appendix section. In the text, references are made to the number of each appendix, not to their page number. Reference to an appendix is made as follows: in-text reference to an appendix can be made within a sentence (appendix 1) or outside a sentence (Appendix 1.). The word APPENDIX in capital letters, the number of the appendix and its title must be written on the actual appendix. If the appendix was not made by the author, its origins must be indicated as a reference (Hirsjärvi et al. 2000, 360–361). More information about page numbering used in appendices can be found on page 17.

## **7.2 Report appearance**

The appearance of the report is also taken into consideration when the bachelor's thesis is assessed. The following have an effect on the report's appearance and content: margins, fonts used, division in paragraphs, headings, page numbering, tables, figures, appendices, reference notes and the list of references.

### **7.2.1 Margins and spacing**

The following margins must be used:

- left margin: 4 cm
- right margin: 2 cm
- top margin: 2,5 cm
- bottom margin: 2,5 cm
- distance between page number and bottom of page: 1,5 cm (Hirsjärvi et al. 2000, 392).

A variation of a few millimetres in margin set-up is allowed, as long as the layout allows cutting and binding.

Spacing should be at least 1,5 lines, and it must remain consistent throughout the report. Longer direct quotations (i.e. four lines or longer) are usually indented by one tabulator indent, and tighter spacing (leading) is usually used for such quotations (Hirsjärvi et al. 2000, 328, 390–391). If you use this method of quotation, you do not have to use quotation marks.

### **7.2.2 Page numbering**

Centre page numbers in the bottom margin, starting from the abstract page, which can be either page 3, 4, or 5, depending on the number of pages preceding it. The page(s) with the list of references (References) are the last ones to be numbered. Page numbers of appendices are internal to the appendices, and they should include the number of the appendix in question: 1/1, 1/2. Appendix page numbering is placed in the top right corner of the page.

### **7.2.3 Division into paragraphs**

There are two layout alternatives for dividing text into paragraphs (Hirsjärvi et al. 2000, 391): the gradual layout and a straight left line system.

In gradual layout, the first line of each paragraph is indented by five character spaces or one tabulator length. In printed publications, paragraph division is usually indicated by indentation. If you are using gradual layout, you must not leave a blank line between paragraphs. The first paragraph following a heading is not indented; neither are paragraphs directly following a figure, table or an indented direct quotation.

In the straight left line system, all lines start at the same point on the left margin without indentation, and one blank line is left between paragraphs.

A paragraph is always longer than just one sentence. Each paragraph consists of one information unit, and it is a good idea to vary the length of paragraphs. However, you should avoid too long paragraphs.

## 7.2.4 Typefaces and effects

Font sizes and character profiles must be clear and easy to read. For example, Arial, Helvetica and Times New Roman are easy to read and available in most programs. In accordance with its graphical guidelines, Oulu University of Applied Sciences uses the Arial Narrow typeface in its publications, and this font has also been used in these instructions. The recommended point size for body text is 12. If it is intended to reduce the final size of the publication, it is advisable to adopt a larger point size for the body text.

You can also emphasise individual words by making them **bold** or *italic* (underlining is not recommended). The text should be as straightforward as possible, using full sentences; for example, you should not use bullet lists unless strictly necessary.

## 7.2.5 Headings

All headings start from the left margin at the same point where the text starts. The heading CONTENTS may be lowered depending on the length of the section so that the page looks well-balanced. The heading ABSTRACT is placed about 7 cm from the top of the page.

Hierarchical numbering is used in heading numbering. The number and text in a heading are separated by one character space, and the last figure in the number is not followed by a full stop. Headings always start at the left margin, and if a heading is more than one line long, the wrap-around second line starts aligned with the first letter of the first line rather than the number on the first line. Headings must be short and informative. They are usually not in the form of a sentence or a question.

In text, the size of main headings is 16 points (they may also be in bold) and the point size of subheadings is 14 (they may also be in bold). If necessary, you may also use unnumbered subheadings, but they are not included in the list of contents, and their point size is the same as that used for body text.

There must be at least two subheadings on each heading level: if there is a subheading 2.1, there must also be a subheading 2.2. Three heading levels are usually enough, and decimal numbering is marked as follows:

**In text****2 HEADING (16 points)****2.1 Subheading (14 points)****2.1.1 Subtitle (14 points)****REFERENCES****In the list of contents**

2 HEADING (12 points)

2.1 Subheading (12 points)

2.2.1 Subtitle (12 points)

REFERENCES

APPENDICES

Each chapter starts on its own new page. The heading and the following text or a subheading are separated by three line breaks (i.e. two blank lines). Subheadings within a chapter are separated from the sections above and below by two line breaks (i.e. one blank line).

**7.2.6 Tables and figures**

The comprehension and readability of the text can be improved by using tables and figures. Tables and figures are independent and self-explanatory units, and only their essential contents or conclusions to be drawn from them are described in the text. If there is a large number of figures and tables in the report, it is convenient to include some of them as appendices. The same matter must not be presented both as a figure and as a table. You should not make a figure or a table to present only one or two rows or items.

Tables and figures must be numbered separately in their order of appearance. All illustrations that are not tables are figures. The term 'figure' is applied for example to photographs, maps and drawings. You should always refer to a figure or a table in the actual text. You should not place a table or a figure immediately after a heading. Instead, you should start with an introduction to the table or the figure. For more instructions on tables and figures refer to Hirsjärvi et al. Tutki ja kirjoita (2000)

## Tables

Tables must be as clear and self-explanatory as possible so that it is possible to understand them after reading a description of the materials and methods. Tables must be numbered and titled, and the titles must indicate the content of the table clearly.

Place the title above the table. Write the word *TABLE* in capitals and italicise it, and also italicise the title of the table. It is recommended that you place two blank lines both before and after the title. Tables begin at the same point on the left margin as the main text, and the title is as wide as the table.

Tables do not contain vertical lines and they should not be framed. Place a horizontal line both at the beginning and at the end of a table. If necessary, you may place footnotes under the horizontal line at the foot of the table. Each row and column must have a name or a heading. Column headings are separated from the rest of the table with a horizontal line.

Tables that have been previously published elsewhere can also be used in the report. In this event, you must mention the source either at the end of the heading (as in table 1) or in a footnote at the end of the table. Often it is sufficient and clear enough to present findings only in percentage terms and to present percentages to the nearest integer. It is notably convenient to present comparisons between different groups by using percentages (table 4). However, the table must show the figures that the calculation of percentages is based on (tables 2–4). If a statistical test has been carried out, this can be mentioned in a footnote (table 4). If any variable involves a great deal of missing data (e.g. in the case that many respondents fail to answer a particular question), you may give information on the extent of missing data in the text, in a footnote to the table or inside the table (table 5).

Not all tables are frequency tables. For example, a summary of the relevant numbers can be included (table 6). Examples of tables:

TABLE 1. Degree completion by field of study (Annual report of Oulu University of Applied Sciences 1999)

| Field of study                  | Number of degrees | %   |
|---------------------------------|-------------------|-----|
| Business and Administration     | 111               | 19  |
| Renewable Natural Resources     | 14                | 2   |
| Health Care and Social Services | 411               | 73  |
| Technology and Communications   | 37                | 6   |
| Total                           | 573               | 100 |

TABLE 2. Breakdown of students by age (n = 37)

| Age     | %   |
|---------|-----|
| 18–19   | 8   |
| 20–21   | 54  |
| 22–23   | 27  |
| 24–25   | 8   |
| over 25 | 3   |
| Total   | 100 |

TABLE 3. The shop where a household primarily buys its groceries (539 respondents)

| Shop          | On weekdays<br>(Mon–Thur)<br>% | At weekends<br>(Fri–Sat)<br>% |
|---------------|--------------------------------|-------------------------------|
| Supermarket A | 18                             | 21                            |
| Supermarket B | 15                             | 16                            |
| Supermarket C | 21                             | 22                            |
| Supermarket D | 16                             | 19                            |
| Other         | 30                             | 22                            |
| Total         | 100                            | 100                           |

TABLE 4. Display of prices in the opinion of retail co-operative members and non-members

| Prices are clearly displayed | Member of the retail co-<br>operative<br>% | Non-member of the retail<br>co-operative<br>% |
|------------------------------|--|---|
| Agree completely             | 19   | 6   |
| Agree to a fair extent       | 25   | 9   |
| Neutral                      | 25   | 15  |
| Disagree to a fair extent    | 26   | 47  |
| Disagree completely          | 6  | 23  |
| Total                        | 100<br>(n = 53)                            | 100<br>(n = 47)                               |

$\chi^2$  -test, p = 0.0025

TABLE 5. Respondents by degree programme

| Degree programme                 | Number |
|----------------------------------|--------|
| Library and Information Services | 7      |
| Business and Administration      | 44     |
| Business Information Systems     | 5      |
| Not known                        | 25     |
| Total                            | 81     |

TABLE 6. Average grade of sixth form certificates for first year students (with A-levels or equivalent) on courses at Oulu Commercial School in the autumn of 1988

| Study programme       | Average | Range   | n  |
|-----------------------|---------|---------|----|
| ADP worker            | 8.5     | 7.3–9.5 | 15 |
| Public administration | 7.9     | 6.7–9.0 | 17 |
| Library               | 8.4     | 7.0–9.4 | 13 |
| Accounting            | 8.3     | 7.2–8.9 | 14 |
| Marketing             | 8.4     | 7.0–9.6 | 26 |
| Secretary             | 7.9     | 6.7–8.8 | 14 |

## Figures

Curves, bars and drawings can be used for illustration. Figures are more suitable than tables for presenting qualitative aspects of numbers, such as comparison and relations between numbers. Bar charts and pie charts, i.e. sector graphs, are most often used (Hirsjärvi et al. 2000, 297–298). To make more involved charts such as frequency polygons or dispersion diagrams, you can refer to instructions in Hirsjärvi et al. (2000).

Figures and figure titles start at the same point as the text, in the left margin. *FIGURE* and the figure's caption go under the image and is italicised, as is the title of the figure. Dark colours

should be avoided. Colour graphics should only be used if necessary for discerning the detail. (Figure 1.)

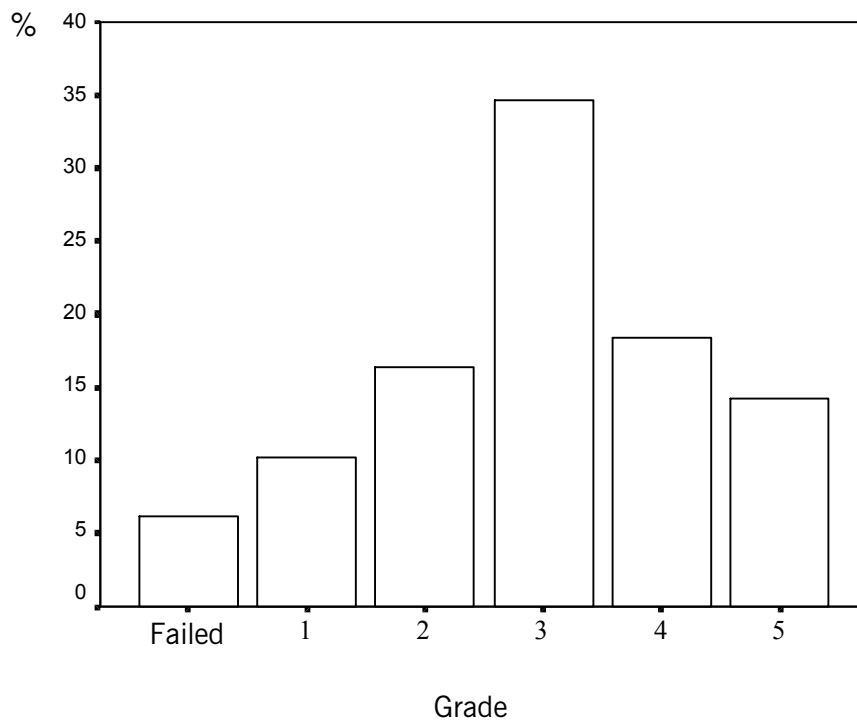


FIGURE 1. Breakdown of mathematics grades ( $n = 49$ )

### 7.2.7 Referencing technique

The purpose of references is to inform the reader of the text or thoughts the author is referring to, and give the reader an opportunity to verify the authenticity of the references and the sources. The Copyright Act states that sources must be acknowledged.

Reference must be made in connection with both summarised and verbatim quotations. Usually reference notes are connected to the content of summarised rephrased sentences. In some cases, direct quotations may be used. Direct quotations follow the original text verbatim, including punctuation. Short direct quotations (i.e. not longer than three lines) are placed inside quotation marks. Indent direct quotations that are more than four lines long and use tighter line spacing. In such a case, it is not necessary to use quotation marks (Hirsjärvi et al. 2000, 318–320, 326–328).

Reference is usually made in the text. In-text references are placed inside brackets following the matter found in the reference material. If a reference note only covers the preceding

sentence, the reference is included in the sentence and a full stop is inserted after the closing bracket. Reference notes consist of the author's name, printing year of the work and the page number(s) (Hirsjärvi et al. 2000, 320).

For example:

One of the objectives of the sixth form is to provide students with guidance to scientific thinking (translated from Viljanen 1986, 18).

According to Viljanen (1986, 18), one of the objectives of the third year of upper secondary school is to provide students with guidance to scientific thinking.

An example of a short (i.e. not longer than three lines) direct quotation:

"One of the objectives of the third year of upper secondary school is to provide students with guidance to scientific thinking" (Viljanen 1986, 18).

An example of a long (i.e. longer than four lines) direct quotation:

One of the objectives of teaching in the first year of upper secondary school is to increase students' social orientation. Individuality is emphasised during the second year, while in the third year the student is encouraged to independent thinking. The Finnish language syllabus are continuously developed, and their quality is high, also if compared to international standards. (Viljanen 1986, 18–19.)

If a reference covers more than one summarised sentence, the reference note is considered to be an independent sentence. In such a case, the reference note follows the summarised entity, and the reference note ends with a full stop inside the closing bracket.

An example of a summarising quotation:

One of the objectives in the first year of upper secondary school is to increase students' social orientation. Individuality is emphasised during the second year, while in the third year the student is encouraged to independent thinking. The Finnish language syllabus are continuously developed, and their quality is high, also if compared to international standards. (Viljanen 1986, 18–19.)

More examples of different types of quotations can be found in Hirsjärvi et al. (2000) and in appendix 8.

### **7.2.8 List of references**

The list of references and the in-text referencing technique are connected. The in-text reference helps the reader to locate the work in the list of references, and to find the pages to which the author is referring. A list of references does not include works that may have been read, but which are not referred to in the final text.

References are marked in alphabetical order based primarily on the author's name. If the author of a publication is not known, the name is replaced by the title of the work, and this can be found in the alphabetical order. An in-text reference to a work whose author is not known is made by an abbreviated title. Source materials can include the following (Hirsjärvi et al. 2000, 338):

- articles
- books
- reports and committee reports
- presentations given at meetings or conferences
- doctoral dissertations and pro gradu theses
- audiovisual materials and electronic media.

The bibliographical information that is necessary for locating publications must be found in the list of references. This information includes:

- Author(s), editor(s)
- Year of publication
- Name of work
- Translator(s)
- The edition used (if there are more than one)
- Place of publication (registered office of the publisher)
- Publisher or conference organiser
- Editor of the whole publication
- Pages where an article can be found in an edited publication or a journal
- Name of series, and serial number

- Name of journal
- Volume number
- Journal number (often marked after the volume number)
- Name, location and date of conference (Hirsjärvi et al. 2000, 337–338).

Electronic documents are marked in the list of references in a way that is different from that used for marking text sources and literary references. Conventional references are made to unchangeable concrete objects that are easy to identify and not those undergoing constant change such as electronic publications. You can find the book or article that is referred to, for example, in a library. However, an electronic publication might change or disappear the next day, which makes it impossible to verify the authenticity of the source. Additional information that has to be provided for electronic sources includes availability and data format and date of acquisition. Availability and format must be used when referring to publications on information networks, for example for Internet sources: available in www format: <URL:...>. The date of reference, and even the time of reference should be given. (Heinisuo and Ekholm 1996, 1997.)

### **7.3 Publication of the report**

Students submit a loose-leaf copy of the finalized Bachelor's thesis together with the appendices to their supervising teacher and to the library of their school as well as the abstract in electronic form for the library database. The library will take care of the binding of the thesis and its inclusion in the library collection. The binding of the library copy of the Bachelor's thesis is free of charge for the student.

Should the student want additional copies of the thesis for his/her own use, he/she must have them bound at a bookbindery of their choice at their own expense. Guidelines are available for bookbinderies on the external appearance of the thesis. For additional information please contact Communication Services.

## 8 MATURITY TEST

For a polytechnic degree, you must take a maturity test, i.e. to write a text related to your bachelor's thesis, which demonstrates your familiarity with the field of study and your command of either the Finnish or Swedish language. The Rector of the polytechnic may allow a student to take a maturity test in some other language than Finnish or Swedish if the student has received education abroad or in some other language than Finnish or Swedish (Polytechnic Decree of 3 March 1995/256, articles 8 and 10). You may take the maturity test after your bachelor's thesis has been approved.

The maturity test is taken under supervised conditions. In the test, you are given two topics relating to your bachelor's thesis, and you must write a short essay on either, without using source materials. The test lasts three full hours. The recommended length of the text is a two-leaf sheet of paper, i.e. about four pages, written on every line.

The text must be a coherent and well-structured unit. The language instructor must be able to understand the text. The author must not assume that the reader is familiar with the bachelor's thesis. However, the author should assume that the reader is familiar with the general way of thinking in the field of study in question, but not familiar with the particular question that the bachelor's thesis deals with. It must be possible to read the maturity test text as an independent work, and it must consist mostly of text. The maturity test must have a clearly displayed title, a distinct beginning and an end. It must be written in clear handwriting.

The tutor and a language instructor assess the maturity test. The maturity test can either be accepted or failed. In grade terms, an acceptance is equal to the grade H3. In the event that a maturity test is failed, the student should acquire feedback for his/her text prior to signing up for a retake of the test.

## REFERENCES

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