The Relationships among the Quality of the Printed Materials, Students' Motivation, and Students' Achievement at the Inservice-Training Program equivalent to Diploma II in Bandung Regional Center, Universitas Terbuka (the Indonesian Open learning University)

by

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ABSTRACT

Self-instructional materials which are interesting, meaningful, and appropriately challenging can enhance students' motivation and achievement (Keller, 1987b). When students are interested in learning materials, feel confident, see some relevance between the learning materials and their needs, and receive some satisfaction from learning materials, they will become motivated. Regardless of the levels of intellectual and other academic ability, students who are motivated will learn more effectively than students who are not motivated. Accordingly, motivated students will learn more than students who are not motivated.

This study was conducted to measure the quality of the Universitas Terbuka's printed materials in terms of enhancing students' motivation for learning. This study also investigated the relationships among the quality of the printed materials, students' motivation, and students' achievement.

Four tutorial groups (136 students) in the Inservice-Training Program for Elementary School Teachers at Universitas Terbuka were assigned by cluster sampling to participate in the present study. Students were asked to evaluate a module of the Educational Psychology (Psikologi Pendidikan) course that they had already studied. The instrument employed was a questionnaire modified from the

Instructional Materials Motivation Survey (IMMS) developed by Keller (1990). Data of students' motivation were obtained through administration of a questionnaire modified from the motivation section of the Motivated Strategies for Learning Questionnaire (MSLQ), developed by a team of researchers from the National Center for Research to Improve Postsecondary Teaching and Learning (NCRIPTAL) and the School of Education at the University of Michigan (Pintrich et al., 1993). A formative test was developed by the researcher and administered to students to assess the students' achievement.

A combination of descriptive and correlational methods was employed. Data on the quality of the printed materials, students' motivation and students' achievement were interpreted by using descriptive statistics. The findings showed that the quality of the module of the Educational Psychology course was categorized as high, students' achievement in the formative test was poor, and, interestingly, students' motivation for studying the module was high.

The Pearson Product-Moment Correlations both for the quality of the printed materials and students' motivation and for the quality of the printed materials and students' achievement were significant and positive. However, the correlation between students' motivation and students' achievement was significantly negative.

Although standard multiple linear regression showed that the four motivational characteristics of a module of the Educational Psychology course could not serve as predictors for students' achievement in the formative test, the confidence characteristic of the module of the Educational Psychology course made the largest contribution to students' motivation for studying the module.

The results of the present study imply that the ARCS (Attention, Relevance, Confidence, Satisfaction) model can be used as a framework for designing and revising a self-instruction module and for planning and carrying out tutorials which can enhance students' motivation and students' achievement. The findings of this study also pose interesting questions which demand further study.

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Chapter I

Introduction

The heart of the educational process is the learning activity (Naidu, 1994). Students' success in their learning activity is influenced by the quality of instruction. Furthermore, Gagne (1985) stated that there are three conditions that affect the quality of instruction: time, motivation, and individual differences.

The amount of time students devote to learning may affect the amount of what they learn. According to Gagne (1985), regardless of the levels of intellectual and other academic ability, students' differences in prior knowledge and discourse comprehension may influence their learning. Prior knowledge has a substantial effect upon the ease of understanding new materials. Discourse comprehension affects how readily students comprehend the presentation of the materials to be learned. The motivation that people bring to education has a strong effect on how and what they learn (Wlodkowski, 1993). Slavin (1991) stated that when there is no motivation, there is no learning. Motivation is the impulse of an individual to expend energy and to organize behavior in order to reach one or more goals (Birren et al., 1981).

Since motivation can affect the quality of instruction which, in turn, can influence students' learning process, there is a need for designing instruction that can enhance

students' motivation to learn. In order to design instruction which can enhance students' motivation, Wlodkowski (1990, 1993) proposed the Time Continuum Model of Motivation. In this model there are six factors which instructors should consider in designing and implementing instructions. These factors (Attitude, Need, Stimulation, Affect, Competence, and Reinforcement) have a substantial impact on students' motivation.

Keller and Suzuki (1988) proposed the ARCS (Attention, Relevance, Confidence, Satisfaction) model, a model which helps instructors make instruction appealing. Bickford (1989) found that application of the ARCS model in designing printed materials can increase students' motivation and achievement.

In conventional education, in which the learning process takes place in a face-to-face setting, students' success in the learning process is influenced by the quality of the teaching-learning process. Therefore, the task of educators is to design the teaching-learning processes which are so interesting, meaningful, and appropriately challenging that students will be motivated in their learning activities.

In distance education, where the teachers are separated from the learners (Keegan: 1990, 1991), the students' success in the learning process is dependent on the quality of study materials. Therefore, the task of educators in

distance education is to design motivating study materials which are enjoyable, meaningful, and appropriately challenging.

The Indonesian Open Learning University, or Universitas Terbuka (UT), is a distance education institution. UT was established by the Indonesian government in order to:

- expand the opportunities for high school graduates of all ages to study at the university level;
- produce experts for various levels of national development;
- improve the competence of experts for various levels of national development; and
- improve the competence of teachers and other professionals to support national development.

(see Pamphlet Universitas Terbuka, 1992)

As a distance education institution, UT uses self-instructional printed materials, namely modules, as the main medium in the instructional process. Students study by themselves, using self-instructional printed materials which are specifically designed to enable them to study according to their own strategies. They can arrange their learning schedule whenever and wherever they want to study.

In order to help students succeed in their learning activities, Universitas Terbuka has continuously improved the quality of self-instructional printed materials by revising them. In addition, UT academic staff have

conducted researches on the modules, the results of which will be important information for efficient and effective revision. Nuzia (1990) evaluated and analyzed the quality of the modules using the criteria of the consistency of the course materials and the basic course outline. Ristarsa (1991) and Rumanta (1991) both investigated the quality of modules in terms of prose and grammatical features, layout of tables and graphs, and typographical design. Djalil et al. (1992) monitored and evaluated the quality of modules in terms of comprehensibility, self-sufficiency, relevancy, and up-to-date information. Fachruddin (1992) analyzed the levels of students' comprehension and difficulty in studying the module. Kesuma (1993) conducted research on students' and tutors' perceptions of the quality of modules. The criteria used in this research were clarity and consistency of objectives, clarity of concepts and principles, use of examples, accessibility to information, visual presentation and lay out, overviews and summaries, readability in general, practice activities, general presentation, and combination of media.

Among the previous researches, none dealt with students' motivation. Given the importance of students' motivation in the success of their learning in distance education, the purpose of this study was to measure the quality of UT printed materials in terms of enhancing students' motivation to learn. Since the quality of study

materials can influence students' success in their learning process, this study also investigated the relationship between the quality of printed materials and students' achievement.

As this study was conducted to determine the quality of UT printed materials, the findings are an important input for UT educators to improve the quality of printed materials in order to increase both students' motivation and students' achievement.

The quality of printed materials in the present study refers to students' motivational responses to a module of the Educational Psychology (Psikologi Pendidikan) course. The responses were obtained through administration of a questionnaire on the quality of printed materials.

The students' motivation refers to students' motivation in studying the Educational Psychology course and is defined as students' scores obtained from the questionnaire on students' motivation.

The students' achievement refers to scores that students obtained from the formative test which was administered after students studied one of the Educational Psychology modules.

Chapter II

Literature Review

This chapter presents contemporary literature regarding motivation and instruction. Initial sections discuss the importance of motivation in learning, designing motivating printed materials, and the ARCS (Attention, Relevance, Confidence, and Satisfaction) model. This section is followed by a summary and the research questions examined in this thesis.

The Importance of Motivation in Learning

The idea of motivation is linked to the reasons people have for doing what they do. Birren et al. (1981) defined motivation as the impulse of an organism to expend energy and to organize behavior in order to reach one or more goals. A person is said to be highly motivated if she/he designates her/his persistence in seeking a goal and is willing to cope with obstacles.

Concerning motivation to learn, Brophy (1987) defined motivation to learn both as a general trait and as a situation-specific state. In terms of a general trait, motivation is an enduring disposition to strive for content knowledge and skill mastery in a learning situation. On the other hand, as a situation-specific state, motivation to learn exists when student's engagement in a particular activity is guided by the intention of acquiring knowledge

or mastering the skill that the activity is designed to reach. McCombs (1991) stated that motivation to learn is an internal, naturally occurring capacity of the human being that is enhanced and nurtured by quality supportive relationships, opportunities for personal choice and responsibility for learning, and personally relevant and meaningful learning tasks.

Motivation is necessary not only because it is an important causal factor of learning but also because it mediates learning and is an outcome of learning. Winne and Marx (1989) stated that motivation is a process and a product of learning. As a process, motivation is a condition under which instruction can be effective. When students are motivated during the learning process, things go more smoothly, communication flows, and anxiety decreases; in addition, creativity and learning are more apparent in instruction with motivated students.

As a product, motivation is a result of effective instruction. Instruction that is attractive, valuable, and suitable for students will increase students' engagement and effort in learning task. When students complete such a learning experience, they seem more likely to have a future interest in what they have learned and are more likely to use what they have learned.

In adult learning, motivation is one of the critical elements (Cantor, 1992). Granger (1990) suggested that motivation is significant to academic success. A study by Oxford et al. (1993) found that motivation had an effect on achievement. Among motivation, learning styles, gender, and learning strategy, motivation was the single most important predictor of success. Suciati (1990) conducted a study of the effect of motivation on academic achievement by first semester UT students. The results were that students' motivation was positively correlated with students' persistence and academic achievement.

The Motivating Printed Materials

In general, to design self-instruction, Rowntree (1990) suggested that there are at least seven major questions which need to be asked, which are:

(1) Who will be the learners?
(2) What are the aims and objectives?
(3) What will the subject content be?
(4) How will the content be sequenced?
(5) What teaching methods and media will be used?
(6) How will the learners be assessed?
(7) How the course or lesson be evaluated with a view to improvement?

In order to answer the first question about the students, Rowntree (1990) suggested that there are four types of information about students: demographic, motivation, learning factors, and subject background. With acknowledgement of those students' characteristics, the

instructional designers should be able to create self-instruction that is suitable for students.

The second question is about the learning objectives. Learning objectives are statements of performance levels that students are expected to achieve after they study the learning materials. Rowntree (1990) summarized the several values of the formulation of learning objectives, as follows:

- to help to distinguish between possible and essential content and to identify ways of sequencing it;
- to help to decide on the most appropriate media and learning activities; and
- to help to decide on suitable ways of evaluating students' achievement, and the effects and effectiveness of instruction.

The subject content is the third question. It includes the main topics, concepts, and principles to be covered in the course or lesson. The subject content is identified based on the learning objectives.

The fourth question is about the sequence of the content. There are many kinds of sequences which can be used to present the content of the learning, such as topic-to-topic, chronological sequence, place-to-place, concentric circle, casual sequence, and background chaining. Rowntree (1990) suggested that whatever types of sequences are used,

they should be chosen on the grounds that they will appeal to the students and will help them learn.

The media are the subject of the fifth question. Since in distance education students do not meet the instructor face-to-face, the media selected should perform these functions:

- catching students' interest;
- reminding them of earlier learning;
- stimulating new learning;
- explaining and provoking thought; and
- getting students to respond actively. (Rowntree, 1990)

The sixth and seventh questions are about evaluation. Evaluation is conducted to decide whether or not students have achieved the learning objectives and to know whether or not the instruction is effective.

As mentioned earlier, self-instruction is the main method of instruction in the distance education system. Students in distance education study by themselves using self-instructional, printed materials which are specifically designed to enable students to study on their own, independent of direct assistance from an instructor. Therefore, student' motivation is an important factor in learning through self-instruction.

Motivation is important for the learning and instructional processes; however, instructional designers can not really motivate students since motivation is an

inherent condition within the individual student. Nevertheless, it can be stimulated by the learning environment. Instructional designers can incorporate motivation strategies into instruction.

Wlodkowski (1990) suggested that the essential condition of motivating instruction is to help students successfully learn what they value and want to learn in a manner that allows for personal pleasure. Accordingly, Wlodkowski (1990, 1993) proposed six factors that instructors should consider in designing and conducting instruction. These six factors are attitudes, needs, stimulation, affect, competence, and reinforcement. These six factors positively influence adult motivation for learning (Wlodkowski, 1993).

Attitude is a combination of concepts, information, and emotions that results in a predisposition to respond favorably or unfavorably toward particular people, groups, ideas, events or objects. Students' attitudes which have a direct influence on their learning include attitudes towards the instructors, the subject matter and learning situation, themselves as students, and their expectations for success in the learning activity. The task of instructors is to create instructional activities that encourage students to like and respect the instructors and the subject matter, and to feel confident that they will succeed in the learning task at hand.

A need is a condition experienced by the individual as an internal force that leads the person to move in the direction of a goal. The more strongly students feel the need, the greater the chance students will feel an accompanying pressure to attain the related goal. Successful instruction is a process that meets the fundamental needs of students.

Stimulation is any change in the perception or experience with the environment that makes people active. Regarding this factor, instructors should create instructional activities that can maintain students' attention, build students' interest, and involve students in the essential part of learning process.

Affect refers to the affective or emotional experience of the students while learning. Affect can be an intrinsic motivator. It indicates that motivational engagement during learning is necessary for maintaining students' motivation for learning. The task of instructors is to maintain an optimal emotional climate in order to enhance emotional engagement during learning. An effective instructor always sees the harmony between emotion and thinking as a supportive integrated force in motivating students to learn.

Competence refers to the competence value for the students that is a result of the learning behavior. A sense of competence occurs when a learner realizes that he/she has attained a specified degree of knowledge or level of

performance that is acceptable by personal and/or social standards. To help students achieve a sense of competence, instructors should develop instructional activities that emphasize and establish conditions for competent learning.

Reinforcement is any event that maintains and increases the probability of the response that it follows. In terms of reinforcement, to enhance students' motivation for learning, instructors should consider the effective use of reinforcing events as important variables in designing instructional activities.

Whereas Wlodkowski claimed six factors to be considered in designing and conducting motivating instruction, Keller (1979) proposed a systematic approach which consists of four elements: (1) **analyze** the motivational problem, (2) **design** a motivational strategy, (3) **implement** the strategy, and (4) **evaluate** the consequences.

The first step, analyzing motivational problems, is to identify the motivational problems in terms of type and location. The location of the problem may be either in the students or in the instruction. The types of problems may be interest, relevance, confidence, or outcomes. Based on the findings from the first step, instructional designers create appropriate motivational strategies. Then, in order to determine whether or not the approach is effective, implementation and evaluation of the approach must be undertaken.

In order to produce instruction that motivates students to learn, Keller (in Wlodkowski, 1993) suggested that the instructional designers must understand and respond to the four basic categories of motivation which are interest, relevance, confidence, and satisfaction. Accordingly, Keller (1987a; Hirumi & Bower, 1991; Keller & Suzuki, 1988) proposed that, to motivate students to learn, an instruction must (a) gain and sustain **students' attention**, (b) pertain to **students' needs**, (c) foster **students' confidence**, and (d) provide **satisfying consequences**.

Keller and Suzuki (1988) proposed the ARCS model which applies motivation from the perspective of how external factors interact with the internal characteristics of the individual to influence motivation. This model can be applied to the design of print-instructional materials. A study by Bickford (1989) showed that printed learning materials which were designed by using the ARCS model had an effect on students' achievement and motivation. Students who completed enhanced motivation lesson learned more and were more motivated than students who completed the original lesson.

The ARCS (Attention, Relevance, Confidence, Satisfaction) Model

The ARCS model was developed to help instructors design motivating instructions, instructions which are appealing, meaningful, and appropriately challenging for students

(Keller, 1987b). ARCS is an acronym which stands for Attention, Relevance, Confidence, and Satisfaction.

Attention.

Attention refers to a relatively enduring preference for certain topics, subjects, areas, or activities (Schiefele, 1991). The more interesting a learning process is, the more students' curiosity will be aroused. According to Keller (1987a; Keller & Suzuki, 1988), attention includes those things that are related to perceptual arousal and inquiry arousal.

Perceptual arousal is a type of arousal that results in unexpected or inconsistent events in the perceptual environment (Keller, 1983). Furthermore, Keller (1983) suggested that the techniques that can be used to increase students' perceptual curiosity include the use of novel, surprising, incongruous, or uncertain events in instructions; use of anecdotes and other devices for injecting personal, emotional elements; provision of opportunities to learn more about things students already know about but also provision of moderate doses of the unfamiliar and unexpected; and use of analogies to make the strange familiar and the familiar strange.

Inquiry arousal is as important as perceptual curiosity. It is another type of arousal which results in information seeking and problem solving behavior (Keller & Suzuki, 1988). Techniques that can be used to increase

students' inquiry arousal are asking questions, creating paradoxes, generating inquiry and nurturing thinking challenges.

Equally important to an increase in curiosity in order to gain and maintain attention is **variability** (Schunk, 1991). Variability refers to an occasional change in the sequence of instructional events or other aspects of the way in which information is formatted and presented.

Relevance.

Relevance refers to the students' perception of personal needs satisfaction in relation to the instruction (Wlodkowski, 1993). It also refers to goal-oriented activity. There is both an ends and a process aspect to relevance (Keller & Suzuki, 1988). Regarding the ends aspect, relevance is largely utilitarian. If the content of the instruction is perceived to be helpful in accomplishing important goals in the students' future, then the students are more likely to be motivated. Considering the process aspect, relevance is related primarily to methods of content presentation in relation to need satisfaction in the students. If the students see the relationship between what is to be learned and what their goals are, they will be motivated to be involved in the learning process. Keller and Suzuki (1988; Keller, 1987a) proposed three techniques to influence relevance: goal orientations, motive matching, and familiarity.

Goal orientation is related to the ends aspect of relevance. If students know where they are going and see a reason for getting there, they are more likely to want to get there, and they exert energy in that regard.

Another technique to influence relevance is **motive matching**, which is related to the process aspect of relevance. This refers more to the way in which something is presented than to the substance of what is presented.

Equally as important as goal orientations and motive matching is **familiarity**. It is a mix of both the ends and the process aspects of relevance. Students enjoy learning things in which they already believe or are interested.

Confidence.

Confidence refers to the perceived likelihood of success (Keller, 1983). It is related to the individuals' attitude toward success and failure. The more likely students think that they will be successful in their learning process, the greater effort they will make to reach a learning goal. Keller and Suzuki (1988) proposed three techniques to influence confidence: success opportunities, learning requirements, and personal control.

Learning requirements. One of the simplest ways to help instill confidence is by making the students aware of what is expected of them.

Success opportunities. When people are learning new knowledge or skills, they usually want to be successful, and they typically expect a payoff for their success. Therefore, instruction should provide many varied and challenging experiences which increase learning success.

Personal control. This refers to students' belief that their success is based upon their effort and abilities. Such belief helps build students' confidence.

Satisfaction.

Satisfaction refers to peoples' good feelings about their accomplishments. If the results of students' effort match their expectations and if they feel good about the results, they may remain motivated to be involved in the learning process (Keller, 1984; Keller & Suzuki, 1988). In order to promote students' satisfaction, Keller and Suzuki (1988) proposed three strategies: natural consequences, positive consequences, and equity.

Natural consequences are the results of intrinsically meaningful lessons. Therefore, the students' satisfaction will increase when the instruction provides problems, simulations, or work samples that allow students to use newly acquired knowledge and skills in a meaningful way to solve "real world" problems.

Positive consequences refer to the use of positive motivational feedback or rewards for success. One way of promoting students' satisfaction is to give appropriate

feedback on the students' accomplishments. This technique will not only help the students feel a sense of completion but will also give them the feeling of satisfaction that naturally arises from the awareness that a learning task has been accomplished.

Equity is related to the internal processes of evaluating outcomes in terms of expectations. Students tend to make comparisons with other people and within their own expectations. To give the students a sense of equity, instruction should show that performance requirements are consistent with the learning objectives and should provide consistent evaluation standards for all students' tasks and accomplishments.

Summary

Motivation is important for the learning process. Learning through self-instruction will largely depend upon the motivation on the part of student. Granger (1990) argued that motivation is significant to academic success.

There are many definitions of motivation. Birren et al. (1981) defined motivation as the impulse of an individual to expend energy and to organize behavior in order to reach some goals. Although motivation is an inherent individual characteristic, it can be stimulated by incorporating motivation strategies to instruction.

Although a study by Bickford (1989) found that the ARCS model was effective for enhancing students' motivation and achievement, application of this model should be examined in a variety of **settings** and with students from a variety of **backgrounds**. In the present study, the ARCS model was used as a criterion-model to conduct an evaluation of the quality of printed materials in distance education setting. In addition, an investigation of the relationships among the quality of printed materials, the students' motivation and the students' achievement was conducted.

Research Questions

In accordance with the purpose of the study, the following specific research questions were addressed:

a. What is the quality of printed materials of the Educational Psychology (Psikologi Pendidikan) course in terms of motivating students to learn?
b. What is the motivation of UT students in studying the Educational Psychology course?
c. What is the achievement of UT students in the Educational Psychology course?
d. What is the relationship between the quality of printed materials and the UT students' achievement in the Educational Psychology course?

e. Which characteristic (attention, relevance, confidence, or satisfaction) of the quality of printed materials of the Educational Psychology course makes the greatest contribution to the UT students' achievement in the Educational Psychology course?

f. What is the relationship between the quality of printed materials and the UT students' motivation in studying the Educational Psychology course?

g. Which characteristic of the quality of printed materials (attention, relevance, confidence, or satisfaction) of the Educational Psychology course makes the greatest contribution to the UT students' motivation in studying the Educational Psychology course?

h. What is the relationship between the UT students' achievement and motivation in studying the Educational Psychology course?

Chapter III

Methodology

This chapter is concerned with the methodology employed in the present study. A description of the design of the study will be presented, followed by a description of the subjects who participated in the present study. Following that, descriptions of the course sample and the instruments employed in the study will be presented. The chapter will conclude with an explanation of the procedure of data collection.

Design

A combination of descriptive and correlational methods was employed in the present study. Descriptive methodology was used because some of research questions sought information about the quality of printed materials, students' achievement, and students' motivation for the Educational Psychology (Psikologi Pendidikan) course in the Inservice-Training Program for Elementary School Teachers at the Indonesian Open Learning University. The present research was also a correlational study as correlational analyses of those variables involved in the research were conducted.

The three variables involved in the present study were the quality of printed materials, students' achievement, and students' motivation. The quality of the printed materials

referred to the degree to which students perceive the module to be interesting, meaningful, and appropriately challenging for them. The quality of printed materials was measured by the scores of students' "motivational" responses to one of the modules of the Educational Psychology course in four categories:

- Attention which referred to the degree that the module's features capture students' interest, stimulate an attitude of inquiry and maintain their attention;
- Relevance which referred to the degree that the module's features meet students' needs, provide appropriate choices, responsibilities and influences, and tie the learning materials to their experiences;
- Confidence which referred to the degree that the module's features assist in building a positive expectation for success and enhance students' beliefs in their competence; and
- Satisfaction which referred to the degree that the module's features provide opportunities to use the learning materials, reinforcement for students' success, and assistance in creating a positive feeling about their accomplishment.

Students' motivation referred to the degree to which students perceive themselves to be interested and confident in studying the module. The students' motivation was

measured by the scores of students' responses to three motivational components:

- Value component which referred to the degree to which students perceive themselves to be interested in studying the module;
- Expectancy component which referred to the degree of students' beliefs about their ability to control their academic performance and to master the learning materials; and
- Affective component which referred to the degree of students' negative thinking about the tests.

The students' achievement was measured by the scores that students obtained on the formative test of one of the modules of the course.

Subjects

It was necessary to obtain the scores of students' achievement for one of the Educational Psychology modules. To ensure that students worked individually on the formative test, there was a need for the researcher to meet the students. Since the Inservice-Training Program for Elementary School Teachers in the Faculty of Education has intensive tutorials, students of that program became the subjects of this research.

The Indonesian Open Learning University (Universitas Terbuka or UT) has 32 regional centers. Among those regional centers, the Bandung regional center has the

largest number of students in the Inservice-Training Program. Therefore, the target population of the present study was students of that program who enrolled at the Bandung regional center during the 1993-1994 registration period and who also took the Educational Psychology course.

The Bandung regional center encompasses 16 regencies/municipalities (kabupaten/kotamadya). To assign four tutorial groups of students from those regencies/municipalities, multistage sampling was conducted (Borg & Gall, 1989). The first stage, conducting stratified cluster sampling (Miller, 1991), was conducted to select two regencies/municipalities. For practical reasons, the Kabupaten Bandung and the Kotamadya Bandung were assigned as samples. Four tutorial groups from Kabupaten Bandung and Kotamadya Bandung were selected randomly. Those tutorial groups were student groups who attended tutorials in Cipatat and Cikalong Wetan (from Kabupaten Bandung) and in Regol and Astanaanyar (from Kotamadya Bandung).

One hundred and thirty six students from the four tutorial groups participated in this research. That number of students was appropriate for using the standard multiple linear regression involving four independent variables in the data analysis. As Tabachnick and Fidell (1989, p. 128) stated, "if either standard multiple or hierarchical regression is used, one would like to have 20 times more cases than independent variables".

The following table presents both the potential and the actual numbers of students who participated in this research.

Table 3.1

The Potential and Actual Numbers of Students Who Participated for Each Tutorial Group

TUTORIAL GROUPS	POTENTIAL	ACTUAL
KABUPATEN BANDUNG		
1. CIPATAT	56	45 (80.36%)
2. CIKALONG WETAN	40	25 (62.50%)
KOTAMADYA BANDUNG		
1. ASTANAANYAR	66	19 (28.79%)
2. REGOL	167	47 (28.14%)
TOTAL	329	136 (41.34%)

Demographic data, which were obtained both from the students themselves and from UT student files, describe the characteristics of students who participated in the present study.

- 79.41% were female and 20.59% were male;
- 80.88% ranged in age from 25 to 34 years old;
- 55.88% had taught at elementary schools for 9 to 12 years;
- 58.83% had taught at elementary schools in higher grades (grade IV, V and VI);

- 95.59% had graduated from a high school for elementary school teachers; and
- 39.71% had graduated from high school over 12 years ago.

Detailed demographic characteristics of students who participated in this study can be seen in Appendix E.

Course Materials Sample

The Psikologi Pendidikan - PPDG 2410 (Educational Psychology) course was chosen as the course materials sample in the present research. This course is one of the basic education courses in the Inservice-Training Program for Elementary School Teachers at the Indonesian Open Learning University (see Katalog Universitas Terbuka, 1991). This particular course was chosen out of a number of the basic education courses as it was the one which was being offered during the period of time during which the research was conducted.

The Educational Psychology course presents topics that are related to the teaching-learning process, such as learning principles, student characteristics, student development, teaching-learning strategies, models and methods of teaching, evaluation system, and diagnosis and remedy of the teaching-learning process (Nasoetion, 1991). This course consists of six modules. During the time that this research was conducted, two modules were being studied, module #2 and module #3. Module #2, "Perkembangan Anak Usia

Sekolah Dasar", (the development of elementary school students), presents the characteristics and the intellectual, cognitive, language, physical, and emotional development of elementary school students. Module #3, "Proses Belajar", is about learning processes. Three topics are presented in this module, that is, the nature and levels of the learning process, mastery learning, and meaningful learning.

Every module begins with the introduction of the main topic of the module, including an explanation of the importance of the materials to be studied and of the relationship of those to previous materials, and a presentation of the learning objectives. Learning materials are presented by topic. In the presentation of learning materials, there are explanations of the learning materials followed by questions for exercises, a summary, and a formative test. The answer keys for the formative test and the reference are placed at the end of the package.

Instruments

As mentioned earlier, there were three variables involved in this research. Accordingly, three instruments were used to gather the data. Firstly, a questionnaire on the quality of the printed materials was used to obtain information about students' "motivational" responses to one of the Educational Psychology modules. Secondly, a questionnaire on students' motivation was used to obtain

information about students' motivation in studying one of the Educational Psychology modules. Thirdly, a formative test was administered to gather information about students' achievement in one of the Educational Psychology modules. In addition to these instruments, a demographic questionnaire was administered to obtain additional data on students.

The questionnaire on the quality of the printed materials.

The questionnaire on the quality of the printed materials was administered to obtain information about the quality of a module that students studied. This questionnaire was derived from the Instructional Materials Motivation Survey (IMMS). The IMMS was designed by Keller in 1989 and is used to measure students' motivational responses to instructional materials. The IMMS is designed in accordance with the theoretical foundations represented by the ARCS (Attention, Relevance, Confidence, Satisfaction) model which is derived from the current literature on human motivation (Bohlin, 1987).

The IMMS requires students to indicate how true a statement is in relation to the instructional materials they have studied. This questionnaire consists of 36 items that are divided into four groups: Attention, Relevance, Confidence, and Satisfaction items.

According to Keller (1990), the reliability estimate of the IMMS based on Cronbach's alpha measure was .96 for the total scale. For subscales, the reliability estimates were .89 for attention, .81 for relevance, .90 for confidence, and .92 for satisfaction.

Since the IMMS was written in English, there was a need for translation into Indonesian. The back translation technique was employed in translation of this questionnaire. In conducting back translation, the original questionnaire was translated into Indonesian and, then, the Indonesian version was translated back into English (Prieto, 1992).

The initial translation of the original questionnaire from English to Indonesian was conducted by the researcher with assistance from her colleagues who studied at the University of Victoria. To ensure that the translation conveyed the same meanings as the original, they were checked by a bilingual Indonesian who held a Bachelor's degree in English.

The Indonesian translation was then back translated into English by two translators. Both of these translators were experienced in both English-Indonesian and Indonesian-English translations. Following this step, the English translation was reviewed by a bilingual for comparison with the original English translation. The reviewer was an American whose native language was English and who was also known to the researcher for her ability in Indonesian

language. The result of comparison between the English translation of the Indonesian version and the original English version showed that there were no substantive differences in the meanings of the statements. However, there were slight differences in the choice of words used in the two English versions.

For example, the statement #14 of the original English was **"The pages of this lesson look dry and unappealing"**. It was translated into Indonesian to become **"Halaman-halaman dalam modul ini kelihatan membosankan dan tidak menarik"**. When it was translated back into English, it became **"The pages of this module appear boring and uninteresting"**. It can be seen, from this example, the phrase "look dry and unappealing" was translated into Indonesian to become "kelihatan membosankan dan tidak menarik". When that phrase was translated back into English, that phrase became "appear boring and uninteresting".

In addition to back translation, a pilot study was conducted to ensure a reliable and valid instrument. Before the questionnaire was administered to 28 UT students who attended tutorials at the Ciputat tutorial center, the questionnaire was analyzed in terms of construct validity. According to Kaplan and Saccuzzo (1989), construct validity is established through a series of activities. These activities are meant both to define the construct and to develop the instrument to measure it. The construct

validity analysis was conducted by an expert who held a Bachelor's degree in Psychology. In terms of construct validity, the statements in the questionnaire on the printed materials were based on elements of the motivation construct. In addition, two UT students were asked to review the questionnaire in terms of their understanding of the statements presented in the questionnaire. Students were asked to explain what a statement meant. If there was ambiguity between the student's understanding of a statement and its original meaning, the researcher asked the students to rephrase the original statement in their own terms.

In terms of internal consistency, the overall reliability estimate of the Indonesian version of the questionnaire on the quality of the printed materials based on Cronbach's alpha measure was .89. The coefficient alphas for subscales were .85 for attention, .50 for relevance, .73 for confidence , and .75 for satisfaction. Those coefficient alphas for the Indonesian version were less than those for the original English version. However, according to Kaplan and Saccuzzo's (1989) view that the acceptable coefficient alpha for reliability is .70, three of those coefficient alphas for the Indonesian version had an acceptable reliability. Since the coefficient alpha for relevance was less than .70, discriminant analysis was conducted to identify which statements were not significantly correlated with the whole statements in the

relevance element. Two statements were removed from the relevance element. After removing those two statements, the coefficient alpha for relevance moved up to .62.

Based on the results of a pilot study, the questionnaire administered to students consisted, therefore, of 34 statements.

To answer the questionnaire, students were asked to indicate how true the statements were to them. The statements that students considered ranged from 1 to 5 with "1" representing a **not true** statement and "5" representing a **very true** statement. For the items that were stated in a negative manner, the responses were reversed with "1", in this case, representing a very true statement and "5" representing a not true statement.

The questionnaire on student motivation.

The questionnaire on students' motivation was administered to obtain information about students' motivation. This questionnaire was derived from the motivation section of the Motivated Strategies for Learning Questionnaire (MSLQ). The MSLQ was designed and developed by a team of researchers both from the National Center for Research to Improve Postsecondary Teaching and Learning (NCRIPTAL) and from the School of Education at the University of Michigan.

According to Pintrich et al. (1993), the motivation scales in the MSLQ are based on a general social-cognitive model of motivation that proposes three general motivational constructs which are expectancy, value, and affect. The motivational section of the MSLQ consists of 31 items that assess students' goals and value beliefs, their beliefs about their skills for success, and their anxiety about tests in a course.

Based on a study conducted by Pintrich et al. (1993), the instrument has relatively good reliability in terms of internal consistency. The coefficient alphas for the motivational scale range from .62 to .90. In terms of the predictive validity, the motivational scale showed a significant correlation with the students' final grades. As with the predictive validity, the motivational scales are valid measures of the motivational and cognitive constructs.

Similarly to the IMMS, the MSLQ was written in English. The processes of translation and the people who conducted these translations were the same as those for the IMMS. The validity analysis was also conducted by the same person. In terms of construct validity, the statements in the questionnaire on students' motivation were based on elements of the motivation construct.

A pilot test of this questionnaire was conducted with 17 UT students who attended tutorials at the Ciputat tutorial center. In terms of internal consistency, the

overall reliability estimate of the Indonesian version of the questionnaire on students' motivation based on Cronbach's alpha measure was .65. The coefficient alpha for value component was .62; for expectancy component, .68; and for affective component, .76. Those coefficient alphas for the Indonesian version were in a range similar to that for the original English version. Accordingly, all the statements in the questionnaire were used in the present study.

The questionnaire on students' motivation consisted of 31 statements which required students to indicate how true the statements were to them. These statements were scored on a 7-point Likert scale, from 1 (**not at all true** of me) to 7 (**very true** of me). For the statements that were stated in a negative manner, the responses were reversed with "1", in this case, representing a very true statement and "7" representing a not very true statement (Pintrich et al., 1991).

The formative test.

The formative test was developed by the researcher based on the intended learning outcomes described in each module. Since the Educational Psychology course consists of six modules, there were 120 items, 20 items for each module. During the time the research was being carried out, only two modules were being studied, and therefore, only 40 items were used. Those were 20 multiple-choice items for module

#2 and 20 multiple-choice items for module #3. The items of the formative test were scored "1" for a **right** answer and "0" for a **wrong** one. Therefore, respondents' scores ranged from 0 to 20. These scores were then transformed into percentages.

By using Bloom's taxonomy for the cognitive domain, the formative test for module #2 consisted of 17 items for Knowledge and 3 items for Comprehension; while that for module #3 consisted of 9 items for Knowledge, 10 items for Comprehension and 1 item for Application. Knowledge items assess student's recall or recognition of information previously presented; Comprehension items assess student's ability to make use of ideas or facts that have been learned; and Application items assess student's ability to use previously learned concepts in new situations (Winzer, 1995).

In order to have valid test items, all formative test items were analyzed in terms of content validity. According to Kaplan and Saccuzzo (1989), the test shows content validity if it provides an adequate representation of the conceptual domain which it is designed to measure. The content validity analysis was conducted by an expert who held a doctoral degree in Curriculum and Instruction and who was one of the authors of the Educational Psychology modules. According to this expert, the formative test items represented the content of the module. Several items were

revised based on the expert's comments. Unfortunately, the test items could not be tried out because at the time that the research was conducted, the tutorials for that course had not yet begun. Consequently, there was no information about the reliability of the formative test.

The demographic questionnaire.

This form was used to obtain additional data on students, such as gender, age, their most recent education, the year they graduated from high school, address of their school, the grade they teach, and work experience.

Procedure

To obtain the necessary data for the present research, the researcher met the students at the tutorial centers. Data were gathered in two tutorial meetings. In the first meeting, the purpose and the importance of the research were presented to the students, as well as descriptions of what they would be asked to do. After that, students were asked to give their opinions about the quality of the module that would be discussed in the next tutorial. They were instructed to fill out the questionnaire independently at home or elsewhere after they had read the module. Students were also asked to fill out the demographic questionnaire.

In the second meeting, the questionnaire on the quality of the printed materials and the demographic questionnaire were collected. Then, the formative test was administered.

After that, the questionnaire on students' motivation was administered. Students had 20 minutes to fill out this questionnaire.

Chapter IV

Results

The purpose of the present study was to investigate the relationships among the motivational characteristics of the printed materials, the students' achievement and the students' motivation. In order to present findings that fulfill that purpose, this section will begin with a description of each variable that was involved in this research, followed by the correlation between variables. The results of regression analyses will then be presented.

The Quality of the Printed Materials

Two different modules were used for different sample groups in the present study because the students were studying different modules of the Educational Psychology course at the time the research was conducted. These modules are module #2, "Perkembangan Anak Usia Sekolah Dasar" (the Development of Elementary School Students), which was being studied by 25 students, and module #3, "Proses Belajar" (Learning Process), which was being studied by 111 students.

A median score was used as the cutting point in interpreting students' scores for the quality of the module. The scores were divided into three categories: low, moderate, and high categories. Since the questionnaire on the quality of the printed materials used the 5-point Likert

Scale, the median score was 3. Therefore, scores of 1 and 2 were categorized as low; scores of 4 and 5 were categorized as high; and the score of 3 was categorized as moderate. Accordingly, in interpreting students' scores for the quality of the printed materials, the following categories were used:

Table 4.1

Categories of Scores for the Quality of the Printed Materials

CATEGORIES	AVERAGE ITEM SCORES	TOTAL SCORES
LOW	1 - 2	34 - 101
MODERATE	3	102 - 135
HIGH	4 - 5	136 - 170

Regardless of the Educational Psychology module that the students were studying, students reported that the quality of the module, in terms of motivating them to learn, was high. The scores for the quality of the Educational Psychology module ranged from 98 to 166. The mean value was 137.1, and the standard deviation value was 12.4. Such a mean value is categorized as high. The number of students for each category can be seen in Table 4.2.

Table 4.2

Frequencies and Percentages of the Number of Students for Three Categories of the Quality of the Educational Psychology Module

n = 136

CATEGORIES	FREQUENCY	PERCENTAGE
LOW	4	2.94
MODERATE	43	31.62
HIGH	89	65.44

Four motivational characteristics of the module were measured. These are Attention, Relevance, Confidence, and Satisfaction characteristics. The Attention characteristic depicts the features of the module which gain and keep students' attention. The Relevance characteristic depicts the features of the module which help students to see the relevance of the module to their own professional or personal lives. The Confidence characteristic depicts the features of the module which help students believe that they have the ability to learn and to use the knowledge and/or skills presented in the module. The Satisfaction characteristic depicts the features of the module which help students reach a satisfying feeling of accomplishment. From these four motivational characteristics, the Confidence characteristic received the lowest mean value. Table 4.3

presents the mean and the standard deviation values for each characteristic.

Table 4.3

Mean and Standard Deviation Values of the Quality of the Educational Psychology Module for the Four Motivational Characteristics

n = 136

CHARACTERISTICS	MEAN (RAW SCORE)	SD
ATTENTION (12 items)	47.1	5.7
RELEVANCE (7 items)	31.3	2.5
CONFIDENCE (9 items)	32.8	4.5
SATISFACTION (6 items)	25.9	2.4

Table 4.4

Mean Values of the Quality of the Educational Psychology Module for the Four Motivational Characteristics in 1-5 Scale

n = 136

CHARACTERISTICS	MEAN
ATTENTION	3.9
RELEVANCE	4.5
CONFIDENCE	3.6
SATISFACTION	4.3

There were 34 statements in the questionnaire on the quality of the printed materials which students were asked to answer using a 5-point Likert Scale. From these 34 statements, there were five statements which 50% or less of the students scored in the high category. These statements were statement #11 in the Attention characteristic and statements #3, #7, #12, and #18 in the Confidence characteristic. For example:

- Statement #3 depicts the ease of understanding of the materials. Thirty-six percent (36.0%) of students stated that the materials were not too difficult to understand.

- Statement #7 concerns the amount of information on the page. Approximately nineteen percent (19.1%) of students stated that it was not too hard for them to pick out and remember the important points from the information on the page.
- Statement #11 concerns the concreteness of the materials. Only forty-eight percent (47.8%) of students found that the materials were not too abstract.
- Statement #12 concerns confidence in learning. In responses to this statement, 46.3% of students stated that the materials in the module could be learned.
- Statement #18 concerns the difficulty of exercises. Half of the students (50.0%) stated that the exercises in the module were not too difficult.

Percentages of student responses to every statement for the three categories can be seen in the Appendix F.

From the demographic data it can be seen that, of those students who categorized the Educational Psychology module as high:

Table 4.5

Frequencies and Percentages of Students Who Rated the Educational Psychology Module as High Exposure to Demographic Data

n = 89

DEMOGRAPHIC CHARACTERISTICS	f	%
GENDER:		
Male	18	20.2
Female	71	79.8
AGE:		
18 - 24	5	5.6
25 - 34	78	87.7
35 - 44	5	5.6
45 -	1	1.1
EXPERIENCES:		
0 - 4	17	19.1
5 - 8	21	23.6
9 - 12	51	57.3
GRADE THEY TEACH:*)1		
LOWER	33	37.1
HIGHER	55	61.8
NOT PERMANENT	1	1.1
EDUCATION:*)2		
SPG/KPG	88	98.9
SMOA	-	-
SMA	1	1.1
THE NUMBER OF YEARS THEY GRADUATED FROM HIGH SCHOOL		
0 - 4	5	5.6
5 - 8	13	14.6
9 - 12	34	38.2
over 12	37	41.6

Note:
*)1 higher (grade IV, V, or VI)
lower (grade I, II, or III)

*)2 SPG/KPG: a high school for elementary school teacher training
SMOA: a high school for athlete training
SMA: a general high school

The demographic data for all students for all categories can be seen in the Appendix G.

Students' Achievement

The range of students' achievement on a formative test of the Educational Psychology module was from 20.0% to 65.0%. The mean value was 41.3% and its standard deviation value was 11.96. Table 4.6 presents the distribution of students' scores on a formative test.

Table 4.6

The Distribution of Students' Scores on a Formative Test of the Educational Psychology Module

n = 136

SCORES	f	%
20.0%	7	5.2
25.0%	11	8.1
30.0%	19	14.0
35.0%	17	12.5
40.0%	21	15.4
45.0%	18	13.2
50.0%	16	11.8
55.0%	9	6.6
60.0%	15	11.0
65.0%	3	2.2
TOTAL	136	100.0

Since a formative test was aimed at assessing students' understanding of learning materials just presented in a module, the mastery levels which UT uses in every learning activity were used in interpreting data on students' achievement. UT uses scores of a formative test in every learning activity as a criterion for continuing to work on the following learning activity. Students who achieve the

mastery levels of 80.0% and more can continue to work on a following learning activity. On the contrary, students who achieve scores less than 80.0% have to reread the learning materials until they achieve at least the mastery level of 80.0%.

Using the mastery levels in every learning activity, students' achievement in a formative test in one of the Educational Psychology modules was categorized as poor.

Table 4.7

Frequencies and Percentages of Students' Achievement in the Formative Test in the Educational Psychology Module for Mastery Levels

n = 136

LEVELS OF ACHIEVEMENT*)	FREQUENCY	PERCENTAGE
EXCELLENT		
90.00% - 100.00%	-	-
GOOD		
80.00% - 89.99%	-	-
MODERATE		
70.00% - 79.99%	-	-
POOR		
< 70.00%	136	100.00

*) used in every learning activity

Students' Motivation

Similar to students' scores for the quality of the printed materials, those for students' motivation were interpreted by using a median score of the Likert Scale as the cutting point. This was different from the scale used in the questionnaire for the quality of the printed materials in that the motivation scale used the 7-point Likert Scale in which 4 is the median score. Therefore, scores of 1, 2, and 3 were categorized as low; those of 5, 6, and 7 were categorized as high; and 4 was categorized as moderate. Accordingly, scores of students' motivation were interpreted by using the following categories:

Table 4.8

Categories of Students' Motivation Scores

CATEGORIES	AVERAGE ITEM SCORES	TOTAL SCORES
LOW	1 - 3	31 - 123
MODERATE	4	124 - 154
HIGH	5 - 7	155 - 217

Students' motivation in studying the Educational Psychology modules was high. Their scores ranged from 141 to 211. The mean value was 175.6, and its standard deviation value was 14.1. That mean value was categorized as high. The number of students for each category can be seen in Table 4.9.

Table 4.9

Frequencies and Percentages of the Number of Students for Three Categories of Students' Motivation in Studying the Educational Psychology Module

n = 136

CATEGORIES	FREQUENCY	PERCENTAGE
LOW	-	-
MODERATE	12	8.82
HIGH	124	91.27

Three components of motivation were measured. These included value, expectancy, and affective components. Statements in the Value component assess students' goals and value beliefs for the module. Statements in the Expectancy component measure students' beliefs about their skills for success in the module. Statements in the Affective component assess students' anxiety about the test in the module. Of those three components, the expectancy component had the lowest mean value. Table 4.10 presents the mean and standard deviation values for each component.

Table 4.10

Mean and Standard Deviation Values of Students' Motivation in Studying the Educational Psychology Module by Three Components

n = 136

COMPONENTS	MEAN (RAW SCORE)	SD
VALUE COMPONENT (14 items)	87.3	6.8
EXPECTANCY COMPONENT (9 items)	44.6	7.6
AFFECTIVE COMPONENT (8 items)	43.7	7.1

Table 4.11

Mean Values of Students' Motivation in Studying the Educational Psychology Module by Three Components in 1-7 Scale

n = 136

COMPONENTS	MEAN
VALUE COMPONENT	6.2
EXPECTANCY COMPONENT	5.0
AFFECTIVE COMPONENT	5.4

There were 31 statements in the questionnaire on motivation which students were asked to answer using a 7-point Likert Scale. From those 31 statements, there were five statements which 50% or less of the students rated in the high category. Those five statements were Expectancy components, that is, statements #3, #8, #14, #19, and #28. All of these five statements measured students' self-confidence in understanding the materials. The percentages of students for each statement for each category can be seen in Appendix H.

The characteristics of students who were highly motivated in studying the Educational Psychology modules were as follows:

Table 4.12

Frequencies and Percentages of Students Who Were Highly Motivated in Studying the Educational Psychology Module Exposure to Demographic Data

n = 75

DEMOGRAPHIC CHARACTERISTICS	f	%
GENDER:		
Male	14	18.7
Female	61	81.3
AGE:		
18 - 24	9	12.0
25 - 34	60	80.0
35 - 44	5	6.7
45 -	1	1.3
EXPERIENCES:		
0 - 4	20	26.7
5 - 8	15	20.0
9 - 12	40	53.3
GRADE THEY TEACH:*)1		
LOWER	30	40.0
HIGHER	44	58.7
NOT PERMANENT	1	1.3
EDUCATION:*)2		
SPG/KPG	72	96.0
SMOA	-	-
SMA	3	4.0
THE NUMBER OF YEARS THEY GRADUATED FROM HIGH SCHOOL		
0 - 4	6	8.0
5 - 8	14	18.7
9 - 12	27	36.0
over 12	28	37.3

Note:
*)1 higher (grade IV, V, or VI)
lower (grade I, II, or III)

*)2 SPG/KPG: a high school for elementary school teacher training
SMOA: a high school for athlete training
SMA: a general high school

Demographic data for all students for all categories can be seen in Appendix I.

The Relationships among the Quality of the Printed Materials, Students' Achievement and Students' Motivation

The Pearson Product-Moment Correlation was used to measure the direction and the degree or strength of the relationships between the quality of printed material and students' achievement; between the quality of printed materials and students' motivation; and between students' achievement and students' motivation (May, Masson, & Hunter, 1990). To determine whether or not the correlation was statistically significant, a t-test was conducted.

Before employing the correlational technique, preliminary data analyses were carried out. Analysis of missing data, detection of outliers, and screening for normality were conducted. Some cases, therefore, were removed, and the number of cases in each correlation coefficient computation was different.

The relationship between the quality of the printed materials and students' achievement.

The quality of the Educational Psychology module had a positive correlation with students' achievement in the formative test in that module. The correlation coefficient was .13, and it was statistically significant ($t_{121} = 15.86$, $p < .05$).

Kaplan and Saccuzzo (1989) and May, Masson, and Hunter (1990) suggested that correlation coefficients are considered as high when they range from .30 to .40. Accordingly, the correlation coefficient of .13 was considered as low. This indicated that the linear relationship between the quality of the printed materials and students' achievement was considered as weak. These findings mean that, as the quality of the Educational Psychology course increases, the students' achievement in the formative test tends to increase slightly.

The relationship between the quality of the printed materials and students' motivation.

There was a positive correlation between the quality of the Educational Psychology module and students' motivation in studying that module. The correlation coefficient was .16, and it was statistically significant ($t_{119} = 19.41$, $p < .05$).

Since the correlation coefficient of .16 is lower than .30, which is considered a high correlation, the linear relationship between the quality of the printed materials and students' motivation was considered as low. Accordingly, this means that, as the quality of the module increases, the students' motivation also increases slightly.

The relationship between students' motivation and students' achievement.

There was a correlation between students' motivation in studying the Educational Psychology module and students' achievement in the formative test for that module, but the correlation, interestingly, was negative. The correlation coefficient was -.11, and it was statistically significant ($t_{132} = 14.34$, $p < .05$).

Since the correlation coefficient of (-).11 is lower than .30, which is considered a high correlation, the linear relationship between students' motivation and students' achievement was considered as low. Accordingly, the finding means that, as students' motivation in studying the Educational Psychology module increases, surprisingly, their achievement in the formative test tends to decrease slightly.

The Contribution of the Motivational Characteristics of the Printed Materials to Students' Achievement and Students' Motivation

In order to investigate the greatest contribution of the four motivational characteristics (Attention, Relevance, Confidence, and Satisfaction) of the printed materials to students' achievement and students' motivation, both standard multiple linear regression and, then, semi-partial correlation were conducted. Not all cases were included in carrying out the standard multiple linear regression because

there are some assumptions that should be matched. There were two cases which were not included in the analyses because these cases had missing data.

Preliminary data analyses, such as detection of univariate and bivariate outliers, detection of multicollinearity and singularity, screening for multivariate normal distribution, and screening homoscedasticity and linear relationship were conducted.

Detection of univariate and bivariate outliers was conducted to identify scores that do not appear to belong with the others. Using a criterion of three standard deviation units greater and less than the mean value in identifying univariate outliers, seven cases were considered to have outliers. In identifying bivariate outliers, scores which had large leverage were considered as outliers. From a regression analysis of data on the quality of the printed materials and students' achievement, there were four cases that had large leverage; while from the regression analysis of data on the quality of the printed materials and students' motivation, five cases were found to have large leverage.

Detection of multicollinearity and singularity was conducted to identify whether or not variables were highly correlated. By conducting regression analyses, after removing outliers, there was no danger of multicollinearity or singularity because the largest of squared multiple

correlation coefficient of the quality of the printed materials and students' achievement was .43 and that of the quality of the printed materials and students' motivation was also .43.

Screening for multivariate normal distribution was conducted to identify whether or not each variable and all linear combinations of the variables are normally distributed. According to Tabachnick and Fidell (1989), if there is multivariate normality, each variable is itself normally distributed, and the relationships between pairs of variables are linear and homoscedasticity. By analyzing skewness and kurtosis of each variable, the results indicated that the data for each variable were normally distributed. By conducting analysis of relationships between variables, the results found that both the relationship between the quality of the printed materials and students' achievement and between the quality of the printed materials and students' motivation were close linear relationships and the variability in data for one variable is roughly the same as at all data of the other variables.

Based on the results of the preliminary data analyses, in the regression analysis of the motivational characteristics and students' achievement, there were 123 cases, while in that of the motivational characteristics and students' motivation, there were 122 cases. Although some cases were excluded, the requirements of having 20 times

more cases than independent variables (Tabachnick & Fidell, 1989) was met.

The contribution of the four motivational characteristics of the printed materials to students' achievement.

From the regression analysis it was found that the four motivational characteristics (Attention, Relevance, Confidence, and Satisfaction) of the Educational Psychology module could **not** serve as predictors for students' achievement in the formative test in that module. Although it was found that .7% of variance in students' achievement in the formative test could be predicted from the scores of the four motivational characteristics of the module, that percentage was not statistically significant ($F_{94,118} = .193$, $p > .05$).

Accordingly, there were no significantly unique relationships between each motivational characteristic of the Educational Psychology module with students' achievement in the formative test. This can be seen in Table 4.13, where it is shown that all unique relationships of each motivational characteristic of the module over and above other motivational characteristics were not statistically significant.

Table 4.13

Unique Relationships between the Four Motivational Characteristics of the Educational Psychology Module and Students' Achievement in the Formative Test

ELEMENTS	SEMI-PARTIAL CORRELATION COEFFICIENT	F	SIGNIFICANCE
ATTENTION	.001	.1188	NOT SIGNIFICANT
RELEVANCE	.001	.1188	NOT SIGNIFICANT
CONFIDENCE	.003	.3565	NOT SIGNIFICANT
SATISFACTION	.004	.4753	NOT SIGNIFICANT

$.05F_{4,118} = 2.4456$

The contribution of the four motivational characteristics of the printed materials to students' motivation.

From the regression analysis it was found that students' motivation in studying the Educational Psychology module could be predicted from the scores of the four motivational characteristics of that module. Approximately twelve percent (12.2%) of variance in students' motivation could be predicted from the motivational characteristic scores, and the other 87.8% could be predicted from other factors. ($F_{4,117} = 4.074$, $p < .05$).

With respect to the unique relationship between each motivational characteristic over and above other characteristics of the Educational Psychology module and students' motivation, the **confidence** characteristic made the

largest contribution to students' motivation in studying that module. Approximately five percent (4.7%) of students' motivation in studying that module was accounted for by the confidence characteristic of that module ($F_{4,117} = 6.26$, $p < .05$). Table 4.14 presents the unique relationships between each motivational characteristic of the module and students' motivation.

Table 4.14

Unique Relationships between the Four Motivational Characteristics of the Educational Psychology Module and Students' Motivation

ELEMENTS	SEMI-PARTIAL CORRELATION COEFFICIENT	F	SIGNIFICANCE
ATTENTION	0	0	NOT SIGNIFICANT
RELEVANCE	0	0	NOT SIGNIFICANT
CONFIDENCE	.047	6.26	SIGNIFICANT
SATISFACTION	.01	1.33	NOT SIGNIFICANT

$.05F_{4,117} = 2.4464$

Chapter V

Discussion

This chapter begins with a summary of the findings followed by discussions of the findings' convergence with and contradiction to both current and past literature. The discussion will be followed by a presentation of the general implications of the findings and the limitations of the present study. This chapter will end with the conclusions and several recommendations.

Summary and Discussion of Findings

The quality of the printed materials.

With respect to **motivational** appeal the quality of a module of the Educational Psychology course was categorized as high. In general, students found that the materials and their presentation in the module were interesting, meaningful, and challenging.

In terms of the **attention** characteristic, students found that the materials and the presentation in the module were sufficiently interesting so that they could focus and maintain their attention on the materials which they were studying; the module presented information that stimulated students' curiosity, and the styles of presentation were varied. One thing which made it difficult for students to maintain their attention on the materials, however, was the abstract nature of some of the content. Students found that

the materials were, in fact, so abstract in places that it was difficult for them to focus their attention.

Students found that the materials and the presentation in the module were very useful for helping them to see the relevance of the materials to their personal and/or professional lives and to achieve a satisfying feeling of accomplishment. In terms of **relevance**, students found that the materials presented in the module were related to their interests, their own lives, and their previous knowledge.

An opposite result was found by Djalil et al. (1992). In their study students were asked to evaluate the learning materials in the Pancasila course (the five principles of the philosophy of life of Indonesian people), the Indonesian Language 1 course, and the Natural Science 2 course. Interestingly, the results showed that there was no perceived relevance between the learning materials students studied and their jobs as elementary school teachers. One possible cause of the different findings might be the sample course which, in the present study, was the Educational Psychology course. This basic education course provides a fundamental knowledge for designing and carrying out the teaching-learning process. Another important point to recall is that all participants were elementary school teachers, and it is reasonable to assume that they have a vested interest in the teaching-learning process.

Regarding the **satisfaction** characteristic, students reported that they enjoyed studying the module, felt satisfied when they completed studying the module, and felt rewarded when they completed the exercises. Again, this result may reflect the implicit characteristics of the sample.

Concerning the **confidence** characteristic, the students felt that the features of the module were less than helpful in building confidence in their ability, both to learn and to use the materials presented in the module. Students reported both that they felt confident when beginning to study the module and that they could learn the materials presented in the module. However, noting that there was too much information on each page, the students asserted that the materials and the exercises were often too difficult for them; the students reported that their confidence, thus, decreased as they progressed through the module.

Studies by Ristarsa (1991), Rumanta (1991), and Djalil et al. (1992) showed results similar to the present study regarding the difficulty of understanding materials. In all these studies, students found that the learning materials were difficult to understand.

There has been no research at UT concerning the motivational characteristics of printed materials. Kesuma (1993), however, conducted research to investigate the quality of the printed materials. In her study, students

and tutors were asked to give their perceptions of the printed materials in terms of clarity and consistency of objectives, clarity of concepts and principles, use of examples, accessibility to information, visual presentation and lay out, overviews and summaries, readability in general, practice activities, general presentation, and combination of media. The results showed that, overall, students and tutors expressed positive perceptions toward the quality of the printed materials. The present study, however, suggests rather mixed perceptions about the motivational qualities of the Educational Psychology modules.

Students' achievement.

Students' achievement on the formative test for a module of the Educational Psychology (Psikologi Pendidikan) course was categorized as poor according to the criteria of mastery level used in each learning activity. All students achieved 70% or less in the mastery level test.

The amount of time students spend in learning can be considered to be related to the students' poor achievement. Gagne (1985) stated that the amount of time which students devote to learning can affect the amount of what they learn. Since the students had a rather limited time to study the module, the information which they grasped from the module may also have been limited. In the present study the students had three days to a week to study the module,

including studying five other courses, before taking the formative test! The results may be different if the students had more time to study the module. This can be seen from the results of the final exam in which the achievement levels were not as poor as those on the formative test. Interestingly, almost sixty-five percent (64.97%) of the students achieved 70% or more in the mastery level on the final exam in the 1994 examination period!

Although students achieved better scores in the final exam, generally the students' achievement in the Educational Psychology course was poor. Almost all students (99.56%) were unable to achieve 70% of the mastery level in the 1993 examination period. In the 1992 examination period, almost ninety-nine percent (98.83%) of students were unable to achieve 75% of the mastery level on the final exam.

There has been no research at UT which investigated students' achievement on the formative tests in any course. However, at the Bengkulu, Sumatra, regional center Fachruddin (1992) did conduct a study of students' comprehension of the printed materials, which is similar in purpose to the formative test. This study showed that the students' comprehension levels ranged from 30% to 46% while the criterion of success was 75%. The students' poor achievement is not only one of the characteristics of Universitas Terbuka courses, but also that of other distance education institutions. For example, deFreitas and Lynch

(1986) found that, in the period of 1978 to 1980, the percentage of students who passed the Introduction Courses in the National Open University of Venezuela ranged from 17.9% to 22.6% of students who enrolled to that course. Accordingly, since students' achievement is commonly used as an important criterion of success, it is necessary to investigate further those factors which may enhance students' achievement.

Students' motivation.

The results suggest that, in general, students were highly motivated in studying the Educational Psychology modules. Students reported that they were interested in the materials presented in the module. They also responded both that they felt little worry about the test and that they had positive perceptions of their potential success. However, they felt less confident about understanding the actual learning materials.

The finding that students were highly motivated seems to confirm the conventional wisdom in adult education, which describes adult learners as highly motivated (Devlin, 1991). Moore (1990) specifically argued that correspondence students tend to be self-motivated, and Knowles (in Long, 1990) asserted that one of the characteristics of adult learners is that they are internally motivated. The results of the present study were also supported by those of Robinson's (1992) study of students at the Open College in

Ontario, Canada, which showed that students were internally motivated in the course they took.

There have been a number of studies at UT investigating students' motivation. Fachruddin (1992) and Sinar (1993) conducted researches to investigate the kinds of motivation that encourage students to continue their study at UT. As mentioned, Fachruddin (1992) conducted a study of students in the Bengkulu regional center. The findings showed that almost ninety-one percent (90.91%) of students stated that the advancement of career was their main reason for continuing their study at UT. Sinar (1993) investigated the reasons of rural students for enrolling at UT. Sinar's study showed that there were seven main categories of reasons for students to study at UT. These reasons were knowledge orientation, personal growth, activity orientation, cost and convenience factor, institutional factor, professional factor, and family and social factor. Among these factors, the cost and convenience factor was the main reason for the rural students to register at UT. In another study, Suciati (1990) investigated first semester UT students' motivation in terms of both their reasons to continue studying and the degree of their motivation; "to better contribute to society" was the main reason students studied at UT. Unfortunately, Suciati did not mention explicitly the degree of students' motivation. Hardhono (1994) conducted a study of the relationships among print-

learning materials, academic performance and persistence of new students of UT. The results showed that the students were highly motivated in studying the Introduction to Macro Economics course; they were satisfied with the materials, and they persisted in the course.

Although the results of the present study are consistent with the common belief that adult distance learners are highly motivated, there are some limitations which should be addressed. Students who participated in the present study were students who attended the tutorials. Since the function of a tutorial is to provide a place for students to discuss the learning materials, those students who attended the tutorials were students who had the curiosity to know more about the learning materials. Therefore, it is not surprising that they were highly motivated in studying the course. Accordingly, it would be useful to know more about the reasons students have for attending the tutorial. A surprising finding about the reason for students to attend tutorials was found by Sari (1994). Her study found that "to discuss the last exam" made the greatest contribution to frequency of attending tutorials. It, however, should be noted that Sari' s study used a different kind of tutorial from that in the present study. Sari's study used tutorials where students voluntarily came once or twice in a semester; whereas, the present study used tutorials where students had to attend at

least 75% of the required tutorials. Their presence in the tutorials, in fact, is a requirement for taking a final examination.

In addition, the sample course in the present study was a course which is familiar to students who have graduated from a high school for elementary school teacher training. Almost ninety-six percent (95.59%) of subjects of the present study were students who had graduated from a high school for elementary school teacher training. Accordingly, these students would feel more confident that they could succeed in this course. It would, therefore, be important to investigate students' motivation in other courses.

The relationship between the quality of the printed materials and students' achievement.

The findings showed that the quality of a module of the Educational Psychology course was positively correlated with students' motivation. Students who rated the module as very interesting, useful, and appropriately challenging tended to learn more than students who rated the module as less interesting, less useful, and less appropriately challenging.

Similar results were found by Bickford (1989). She conducted an experimental study to determine the effects of the systematic application of the principles of motivation to the design of printed materials on high school students' motivation and achievement. She used the ARCS Model in

designing printed learning materials. The results showed that students who studied the motivating lesson learned more than students who studied the original version. Moreover, Jenkins (1981) proposed that students' understanding of new materials depends both on how interesting they find it and on what they know already about the material in the presentation. Interesting learning materials and familiarity are indicators of a motivating instructional materials. This suggests that motivating learning materials can help students to understand the learning materials presented. In addition, students who learn more effectively will typically learn more and learn it more quickly.

Concerning students' achievement, Chacon-Duque (1985) and Woodley and Parlett (in Moore, 1990) investigated the factors that mediate course completion and achievement in college distance education. The results of both studies showed that the instructional materials were one of the most important variables in determining outcomes.

The results of the present study indicated that students will learn more if they find that the learning materials are very motivating. Therefore, it is important for learning material designers to create motivating learning materials. Learning material designers can use the ARCS model as a guide for designing learning materials which are motivating.

There are four characteristics of motivating learning materials, according to the ARCS model. These characteristics are attention, relevance, confidence, and satisfaction. The present study found that there was no one characteristic that made the greatest contribution to students' achievement. This means that, among four characteristics of motivating learning materials, there was not one best characteristic of the motivating learning materials that could individually be used as a predictor of students' achievement.

There have been no studies which have compared the effects of the four characteristics of motivating learning materials on achievement. Keller (1987a) mentioned that it is expected that the course or lesson satisfies all the motivational requirements. However, there are some situations where a specific type of motivational strategy is required. It depends on the characteristics of the learning materials themselves and the characteristics of the students. It is important, therefore, to investigate the quality of the printed materials in other courses in order to answer two important questions:

(1) what kinds of specific motivational strategies are required in particular materials? and

(2) are there general strategies that are effective across different materials?.

The relationship between the quality of the printed materials and students' motivation.

From the findings of the present study it appears that the quality of a module of the Educational Psychology course has a positive correlation with students' motivation. Students who noted that the features of the module were motivating were more motivated than students who noted that the module was less motivating. Students became motivated when their attention was engaged with the learning materials; they felt confident, they saw that there was some relevance between the learning materials and their needs, and they received some satisfaction from learning the module.

The results of the present study are consistent with those of a study by Bickford (1989) which investigated the effects of a motivating lesson on high school students' motivation. The results showed that students who completed the motivation enhanced lesson were more motivated than students who completed the original version.

The findings of the present study support the assumptions about the value of motivating instruction. Keller (1983) suggested that motivating instruction (an instruction which is interesting, useful, and appropriately challenging) can stimulate students' motivation. Wlodkowski (1993) stated that learning experiences which consider attitude, need, stimulation, affect, competence, and

reinforcement positively influence adult motivation for learning. Moreover, Wlodkowski (1990) mentioned that the learning experiences which are pleasurable, meaningful and worthwhile and which help students successfully learn what they value and want to learn can raise students' motivation. A study by deFreitas and Lynch (1986) suggested that course redesigning may enhance students' motivation to persist successfully.

Four characteristics of motivating printed materials were used in the present study. These characteristics are attention, relevance, confidence, and satisfaction. Among these characteristics, confidence made the greatest contribution to the students' motivation. In other words, the features of the module which help students to believe that they have the ability both to learn and to use the learning materials made the greatest contribution to their motivation. This indicates that, to enhance students' motivation, the module should provide and present learning materials in which students can experience success without making learning materials either too easy or too difficult for some students.

A study by Clifford (1991) found that students were interested in moderate academic risk-taking tasks and moderate risk taking tasks facilitated learning and appeared to elicit increased effort. Tasks or assignments that offer

reasonable challenges to students will increase students' motivation to learn (Ames, 1992).

The finding that confidence made the greatest contribution to students' motivation indicates that it is important to study further the features of the module that can enhance UT students' confidence. In turn, it is also important to study the degree of confidence which students should feel in order to enhance their motivation.

The relationship between students' motivation and students' achievement.

The findings indicated that students who were highly motivated in studying the Educational Psychology course tended to perform less well on the formative test than those who were poorly motivated. Surprisingly, students who were very interested in the learning materials, who thought that they would do well, who felt confident, and who were less worried about the test, got lower scores on the formative test. However, it should be noted that the degree of the relationship was weak [near to zero ($r = -.11$)].

These results stand in opposition to the general notion that motivation is a consistently significant factor in academic success (Granger, 1990). Ideally, the higher the students' motivation, the higher their achievement. Highly motivated students will engage longer on learning tasks than less motivated students.

There have been a number of studies of students motivation and students' achievement; they have generally shown that students' motivation has a positive relationship on their achievement (Suciati, 1990; Oxford et al., 1993). It should be noted that different indicators of motivation and achievement were used in the previous studies and in the present study.

For example, Suciati (1990) conducted a study of the effects of motivation on the academic achievement of first semester UT students. This study used academic self-concept, expectancy of success, and value of success as indicators of motivation. GPA and course grade were used as indicators of academic achievement. Her study found that students' motivation correlated positively with students' academic achievement. When each motivation indicator was analyzed separately, the academic self-concept and expectancy of success were positively correlated with academic achievement. However, there was a negative correlation between value of success and academic achievement. Oxford et al. (1993) investigated factors affecting achievement in a Satellite-Delivered Japanese Language Program. Instrumental motivation, general degree of motivation, integrative motivation, and perception were used as motivation indicators and final examination scores were used as an achievement indicator. The study by Oxford et al. (1993) showed that, although motivation, learning

styles, gender, and learning strategy use were all found to be influential, motivation was the single most important predictor of success. In contrast, the present study used value, expectancy, and affect as motivation indicators and formative test scores as an achievement indicator; interestingly, there was a negative correlation. Accordingly, it is important to conduct further research to extend the present study to examine the relationship between each motivation indicator and achievement.

All three results of correlation analyses showed the weak linear relationships between variables. This was indicated by low correlation coefficients which were less than .30. According to May, Masson, and Hunter (1990), a correlation coefficient is affected by the variance of scores which is indicated by the degree of standard deviation value; and the degree of standard deviation value is affected by the range of values on a variable. Accordingly, the range of values on variables affects the correlation coefficient. Restriction of the range of values on either one or both of two variables will typically reduce the degree of the correlation coefficient. The low correlation coefficients which were found in the present study ware caused by the low standard deviation values of all variables, especially values related to students' achievement and the quality of the printed materials. Therefore, to avoid a restricted range of values of

variables, it is important to do research with larger samples.

General Implications of the Findings

Helping students succeed in their learning is one of the responsibilities of an educator. In distance education, in which self-instruction is used as the main instructional technique, creation of an effective self-instructional guide can help students learn successfully. In the present study, interest, relevance, confidence, and satisfaction were used as criteria in evaluating a module of the Educational Psychology course. Using these criteria, students reported that the quality of the module was categorized as high. Students' ratings of the quality of the module had positive correlations with their motivation and their achievement. Accordingly, the ARCS (Attention, Relevance, Confidence, Satisfaction) model can be used as a guide for designing and revising self-instructional materials. In order to enhance students' motivation and achievement, the focuses in designing and revising modules should not only be placed on clarity and readability of learning materials but also on involvement of the students' emotions.

Since students are unique, possessing different values, beliefs, needs, attitudes, motives, and abilities, it is impossible to create a self-instructional module which is suitable for every student. Fortunately, UT provides opportunities for students to attend study groups and/or

tutorials so that students can discuss what they find difficult in their studying. For students in the Inservice-Training Program for Elementary School Teachers, in particular, there are intensive tutorials which students are required to attend. Therefore, tutors can help students by making the tutorials interesting and useful. The findings in the present study suggest that tutors should provide varied activities, make learning materials more personal and familiar, create learning activities that allow students to share what they have learned and produced, and provide consistent feedback and reinforcement.

Although the findings of the present study were consistent with the assumptions of the ARCS model, it should be noted that the sample course was a specific course, the Educational Psychology course. Since every course has different characteristics, it is important to conduct similar studies for different courses. Such studies may provide more information about the kinds of learning materials which require specific presentation strategies.

There was one surprising finding in the present study. It was that students' motivation was negatively correlated with students' achievement. Highly motivated students tended to perform poorly on the formative test. Ideally, motivation is important for academic success (Granger, 1990). Is there "optimal motivation" becomes an interesting question. It seems necessary to study further whether or

not "extreme" motivation can be detrimental to learning and performance. If extreme motivation is found to be detrimental, the degree of optimal motivation that students should have to achieve performance criterion might be identified. Such identification might suggest the kinds of strategies that the instructional designers should employ to create instruction which will ensure appropriate and optimal motivation on the part of the students.

Motivation, it is generally agreed, is important for academic success. However, ability is another factor which contributes to differences in learning and performance gains. It would be interesting to conduct a study of the effects of a combination of motivation and ability on students' achievement.

General Limitations of the Study

The present study focused on the relationships among the quality of a module, students' motivation, and students' achievement. Accordingly, the results of the present study cannot be interpreted to indicate that there is a cause and effect relationships among the quality of the printed materials, students' motivation and students' achievement. The results of the present study do indicate, however, that changes in students' motivation and students' achievement are related to an increase in the assessment of the quality of the printed materials.

Since different subject matter requires specific presentation strategies, only one course was used as a sample course. Educational Psychology was chosen as the sample course in the present study. Consequently, the results of the present study cannot be generalized for other courses, except for courses which have similar characteristics to those of the Educational Psychology course.

Two instruments which were employed in the present study were originally written in English; however, the subjects of this study had Indonesian as their national language. Consequently, caution again should be used in generalizating the findings of the study. However, a back translation was employed to produce a translation which was equivalent to the source and was understood by the subjects to whom the questionnaires were administered (Prieto, 1992). In addition to back translation, a pilot study was conducted to ensure the reliability of the questionnaires.

Information on the formative test scores was necessary for the present study. To ensure that students worked individually on the formative test, the researcher felt that the best way to meet students was in a tutorial setting. Therefore, a cluster sampling was employed to select the subjects. Consequences of employing the cluster sampling are that the results of the study are both less accurate and less sensitive than if the study used a simple random

sampling to population differences (Borg & Gall, 1989; Miller, 1991). However, due to time and budget limitations, the cluster sampling was employed.

Some data were eliminated in data analyses in order to meet the requirements of employing regression analysis. Elimination of data can distort the yielded results (Borg & Gall, 1989), and, accordingly, the results of the present study should be cautiously interpreted. However, the number of samples which were analyzed matched with the minimum requirement for sample size, and, therefore, the findings of the present study were interpretable.

Conclusions and Recommendations

In brief, the conclusions of the present study are:

1. There were mixed perceptions, in terms of motivational appeal, about the quality of modules of the Educational Psychology course. The modules were helpful for students to maintain their attention, to see the relevance of the learning materials and their needs, and to achieve a satisfying feeling of accomplishment. However, in terms of helping students to build confidence in their ability, the modules were less than helpful.
2. Students' achievement in the formative test was poor. Their achievement level was below the passing level for continuing to study the following module.

3. Although, in general, students were highly motivated in studying a module of the Educational Psychology course, students felt less confident about their ability to understand the learning materials.
4. The results indicated that there was a positive relationship between the assessed quality of a module and students' achievement. However, there was "no best characteristic" of the quality of a module that made the greatest contribution to students' achievement.
5. Another positive relationship was found in the present study. It was the relationship between the assessed quality of a module and students' motivation. In fact, the confidence characteristic of the quality of a module made the greatest contribution to students' motivation.
6. A surprising finding came up from the present study. The finding was that students' motivation was negatively correlated with students' achievement.

As the purpose of the present study was to provide important information for UT in order to help students succeed in their study, based on the results of the study, several suggestions are offered:

1. In developing and revising modules the focuses are not only placed on the clarity and readability but also on the involvement of students' emotions. UT can use the ARCS model as a framework for designing, developing, and revising modules.

2. Since the Inservice-Training Program for Elementary School Teachers provides required, intensive tutorials, it would be important for tutors to apply the ARCS model in planning and carrying out tutorials.

It is also suggested to do further researches to answer several questions which were not addressed in the present study. For example:

1. What is students' motivation in studying other courses?
2. What is the quality of modules of other courses?
3. What kinds of learning materials require specific presentation strategies?
4. Is "extreme" motivation detrimental to learning and performance? If so, what degree of motivation is appropriate for achieving optimal performance?
5. What are the effects of a combination of ability and motivation on achievement in the UT context?

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A P P E N D I C E S

Appendix A

A Questionnaire for Student's Opinion about the Printed Materials

derived from the Instructional Materials Motivation Survey (Keller, 1987)

INSTRUCTIONS:

1. There are 34 statements in this questionnaire. Each statement asks your opinion about the module that you have just studied and asks you to indicate how true the statement is.

2. Give the answer that truly applies to you, not considering what other opinions might be.

3. Think about each statement by itself. Do not be influenced by your answers to other statements.

4. Give your answer to each statement as accurately as possible. Use the scale below to indicate your opinion about each statement. Circle 1 if a statement is not at all true; circle 5 if a statement is very true. If the statement is more or less true, circle the number between 1 and 5 that best describes your opinion.

COURSE NAME: EDUCATIONAL PSYCHOLOGY
MODULE # : 1, 2, 3, 4, 5, 6 *)
STUDENT # : .....

		very true				not at all true
1.	The first time I saw this module, I had the impression that this module would be easy for me.	1	2	3	4	5
2.	There was something in the beginning of the module which captured my attention.	1	2	3	4	5
3.	The subject matter of the module being studied has been more difficult to understand than what I had imagined.	1	2	3	4	5
4.	After reading the introduction, I felt certain that I knew what I was expected to learn from this module.	1	2	3	4	5
5.	Completing this module's exercises resulted in my satisfaction.	1	2	3	4	5
6.	The relationship between the materials of the module being studied and my previous knowledge is clear.	1	2	3	4	5
7.	There are many pages that are full of information so that is difficult to select and to remember the important points.	1	2	3	4	5
8.	This module's materials caught my attention.	1	2	3	4	5
9.	Successful completing of this module is important to me.	1	2	3	4	5
10.	The quality of the course content presentation of this module helped me to concentrate.	1	2	3	4	5

*) circle one of them

		very true				not at all true
11.	This module is so abstract that it is difficult to maintain my concentration on the module.	1	2	3	4	5
12.	When I studied this module, I was sure that I would be able to learn its contents.	1	2	3	4	5
13.	I enjoyed this module so much that I wish to study more about the topics in this module.	1	2	3	4	5
14.	The pages of this module appear boring and uninteresting.	1	2	3	4	5
15.	The contents of this module match my interests.	1	2	3	4	5
16.	The arrangement of the information on the pages helped me to maintain my attention.	1	2	3	4	5
17.	There are descriptions or examples of how people can make use of the knowledge in this module.	1	2	3	4	5
18.	The exercises in this module are too difficult.	1	2	3	4	5
19.	This module provides information which arouses my curiosity.	1	2	3	4	5
20.	I truly enjoyed studying this module.	1	2	3	4	5
21.	The many repetitions of the subject matter in this module sometimes bored me.	1	2	3	4	5
22.	The presentation style and contents of this module impressed upon me that its contents are useful knowledge.	1	2	3	4	5
23.	I learned several things which were unexpected.	1	2	3	4	5

		very true				not at all true
24.	After studying this module for a while, I am sure that I will be able to pass the examination.	1	2	3	4	5
25.	The word arrangement in the feedback provided after the exercise and in other comments within this module makes me feel that my effort is valued.	1	2	3	4	5
26.	The variety of the reading materials, exercises, descriptions and so on helped me to maintain my attention on this module.	1	2	3	4	5
27.	The writing style of this module was boring.	1	2	3	4	5
28.	I can relate the contents of this module to other things what I have been seen, done, and thought in my life.	1	2	3	4	5
29.	There were too many bothersome words on each page.	1	2	3	4	5
30.	I felt happy when I completed this module successfully.	1	2	3	4	5
31.	The contents of this module will be worthwhile for me.	1	2	3	4	5
32.	I can not understand even a little of the materials of this module.	1	2	3	4	5
33.	The well-organized contents convinced me that I would be able to learn this materials.	1	2	3	4	5
34.	I was very glad to study this well-organized module.	1	2	3	4	5

APPENDIX B

A DEMOGRAPHIC QUESTIONNAIRE

1. Student #: .....

2. Office:
   a. The name of school: .....
   b. Address : .....
      .....
      .....
      .....
      .....
   c. The distance to the tutorial center: ..... Km.

3. Your responsibility at school is: *)
   a. as a teacher
   b. as a principal
   c. .....

4. If you are a teacher, you teach at grade: *)
   a. I
   b. II
   c. III
   d. IV
   e. V
   f. VI

5. You go to the tutorial center from: *)
   a. the school
   b. home, with distance to the tutorial center: .... Km.

6. What is you perception about "Higher Education"?
   .....
   .....
   .....
   .....
   .....
   .....
   .....
   .....
   .....
   .....

Bandung,

_____

*) Circle one of them

APPENDIX C

A FORMATIVE TEST
for
THE EDUCATIONAL PSYCHOLOGY COURSE

(develop 1994, Siti Juleha)

GENERAL INSTRUCTION:

1. Before working on this test, first check the number of pages and page numbers of the test.
   The test consists of 4 pages and 20 items.
   If it is not complete, ask for replacement from the invigilator.

2. Read each specific instruction that explains how to answer the questions properly.

3. The time for working on this test is 30 minutes.

4. Try to answer all questions. There is no penalty for wrong answers.

5. Cross (X) out the letter of the correct answer.

6. While working on the test, you are not allowed to ask anyone for an explanation of the test questions.
   Work on the questions as they are.

7. After you finish working on the test, hand in both the answer sheet and the test questions to the invigilator.

FORMATIVE TEST FOR MODULE #2

INSTRUCTION: For questions #1 to #12, choose the one most correct answer.

1. One of characteristics of higher grade elementary school students is:
   A. to obey the rules of play
   B. to wish for good achievement without considering whether it is reasonable
   C. to make comparisons between themselves and other students
   D. to show their interests in practical every day living.

2. One of the characteristics of students in the pueral period is that students begin to:
   A. have high motivation for competition
   B. consider grades as a criteria of success at school
   C. have an interest in specific courses
   D. tend to praise themselves.

3. In thinking activities students are faced with objects which are represented in the following forms, <u>except</u>:
   A. the idea
   B. the definition
   C. the concept
   D. the facts.

4. The secret language which children use to communicate with their peers emerges during:
   A. childhood
   B. preschool period
   C. school period
   D. pueral period.

5. Egocentricity and monologue are characteristics of students at:
   A. sensorimotor stage
   B. preoperational stage
   C. concrete operational stage
   D. formal operational stage.

6. In order to enhance the patterns of students' formal thinking, a teacher should provide students many opportunities to:
   A. do by themselves the activities that relate to the topic being discussed
   B. read a book that relates to the topic being studied
   C. discuss the topic being studied with their peers
   D. ask as many questions as possible about the topic being discussed.

7. The following options are language forms that emerge in children between the ages of 12 to 15 months, except:
   A. cries
   B. facial expression
   C. babbling
   D. hand gestures.

8. According to Piaget the ability to grasp the moral concept from a story is one of the abilities that children achieve at:
   A. sensorimotor stage
   B. preoperational stage
   C. concrete operational stage
   D. formal operational stage.

9. An uneasy feeling which is caused by an unreal situation is called:
   A. fear
   B. worry
   C. anger
   D. jealousy.

10. According to Piaget, the intellectual development of elementary school students takes place during:
   A. sensorimotor stage
   B. preoperational stage
   C. concrete operational stage
   D. formal operational stage.

11. A kind of emotion that reaches its peak between the ages of 3 to 6 years is:
   A. anger
   B. jealousy
   C. fear
   D. curiosity.

12. The peak of children's jealousy appears between the ages of:
    A. 1 to 2 years
    B. 3 to 4 years
    C. 5 to 6 years
    D. 7 to 8 years.

INSTRUCTION: For questions #13 to #20, choose:
A. if (1) and (2) are correct
B. if (1) and (3) are correct
C. if (2) and (3) are correct
D. if (1), (2), and (3) are correct.

13. Children who have left the harmonious schooling period will show several characteristics; these are:
    (1) desire for authority
    (2) orientation to the outside world
    (3) willingness to make their own rules.

14. Factors that can influence the development of students' intellectual ability are:
    (1) previous knowledge which students already have
    (2) students' language ability
    (3) students' social environment.

15. Cognitive activities that are important for learning at school are:
    (1) to recognize
    (2) to remember
    (3) to think.

16. Things that differentiate the emotional development of children at the preschool stage and children at the school stage are:
    (1) the situations which arouse emotion
    (2) the forms of expression
    (3) the degree of deep emotion.

17. In the beginning children learn a language because they want to satisfy their needs in terms of:
    (1) having information about their environment
    (2) expressing their needs
    (3) expressing their opinions.

18. Children's emotional development is influenced by:
    (1) the level of endocrine system development
    (2) the level of thinking maturity
    (3) the learning process.

19. The types of physical growth that influence children's behaviors are changes in:
    (1) the muscle growth
    (2) the function of endocrine gland
    (3) the physical structure.

20. Fast physical growth takes place between the ages of:
    (1) 0 to 2 years
    (2) 2 to 11 years
    (3) 11 to 14 years.

FORMATIVE TEST FOR MODULE #3

INSTRUCTION: For questions #1 to #15, choose the one most correct answer.

1. Learning is a process of behavior change which happens continuously in individual's behavior as a result of:
   A. experience
   B. heredity
   C. maturity
   D. growth.

2. The following options are phases of the learning process according to Skinner (Operant Conditioning), except:
   A. the availability of stimulus
   B. the performing of behavior
   C. the information processing
   D. the reinforcement for a behavior.

3. According to Brunner, a student who is learning how to weave through practice is one of the examples of:
   A. enactive learning
   B. iconic learning
   C. symbolic learning
   D. reflective learning.

4. One of the cognitive factors that can influence individual's ability to learn is:
   A. curiosity
   B. language ability
   C. aptitude
   D. memory ability

5. If a student is already able to explain the characteristics of reptiles in a natural science course, it means that the student has already reached the learning stage of:
   A. problem solving
   B. rules
   C. concepts
   D. discrimination.

6. According to Gagne, a student who is already able to read a poem with correct intonation indicates that the student has already achieved the learning stage of:
   A. verbal association
   B. discrimination
   C. concepts
   D. rules.

7. Mr. Rifqi wants to develop his students' intellectual skills through an instruction on the topic of healthy living. Accordingly, to pursue this instructional objective, an internal condition which should be available is:
   A. morning exercise every day
   B. a speech about health from healthcare workers
   C. a habit of taking food from home
   D. a competition on wearing clean and tidy clothes.

8. One of the mastery learning principles is:
   A. every student is different in abilities
   B. every student will master the learning materials in a different time
   C. every student will reach a different achievement
   D. every student experiences a different learning process.

9. According to mastery learning concepts, students' achievement is most determined by:
   A. learning time
   B. learning attitude
   C. learning habit
   D. learning style.

10. An instructional strategy that is appropriate with mastery learning concepts is an instruction by:
   A. module
   B. tutorial
   C. discussion
   D. simulation.

11. The following options are factors that influence students' mastery of learning materials, <u>except</u>:
   A. aptitude for learning something
   B. ability to understand instruction
   C. learning type students employ
   D. the available time for learning.

12. In mastery learning concepts, the quality of an instruction refers to the appropriateness and congruence of:
   A. teaching method to students' capability
   B. teaching method to teacher' capability
   C. learning materials to students' capability
   D. learning materials to teacher' capability.

13. If a teacher wants to apply mastery learning concepts in his/her teaching-learning activities, s/he, in evaluating students' achievement, must employ evaluation criteria that emphasizes:
    A. group norm
    B. mastery norm
    C. situations
    D. individual differences.

14. In order to make the learning process meaningful for students, the first thing that a teacher should know before designing and carrying out the teaching-learning activities is:
    A. students' previous experiences
    B. students' learning habits
    C. effective teaching methods
    D. learning materials being presented.

15. After learning about how to take care of their environment, students have become more accustomed to throwing their garbage into a garbage can. This indicates that there has been meaningful learning in:
    A. attitudes
    B. skills
    C. knowledge
    D. creativity.

INSTRUCTION: For questions #16 to #20, choose:
A. if (1) and (2) are correct
B. if (1) and (3) are correct
C. if (2) and (3) are correct
D. if (1), (2), and (3) are correct.

16. Techniques that a teacher can employ to facilitate information transfer from short-term memory to long-term memory are:
    (1) to relate new topics to topics that have been already studied
    (2) to present the practical use of topics that are being studied
    (3) to conform presentation methods to students' interest.

17. In order to carry out intellectual skill learning, a teacher should design an instructional plan that consists of:
    (1) learning objectives that are expected
    (2) internal conditions that should be available
    (3) external conditions that should be organized.

18. In order to increase students' capability through mastery learning, a teacher, in planning and carrying out the teaching-learning process, must:
    (1) formulate specific instructional objectives
    (2) administer summative tests for materials that have been studied
    (3) provide an enrichment program for bright students.

19. Students can receive several advantages by applying mastery learning concepts. For example, students can:
    (1) arrange the pace of their learning process
    (2) choose their learning process
    (3) increase their perseverance in learning.

20. According to Ausubel, the meaningfulness of learning materials is dependent on:
    (1) students' readiness for learning
    (2) the clarity of learning materials being studied
    (3) the effectiveness of teaching methods being employed.

ANSWER SHEET

NAME: .....

STUDENT #: .....

==========

1.	A	B	C	D	11.	A	B	C	D
2.	A	B	C	D	12.	A	B	C	D
3.	A	B	C	D	13.	A	B	C	D
4.	A	B	C	D	14.	A	B	C	D
5.	A	B	C	D	15.	A	B	C	D
6.	A	B	C	D	16.	A	B	C	D
7.	A	B	C	D	17.	A	B	C	D
8.	A	B	C	D	18.	A	B	C	D
9.	A	B	C	D	19.	A	B	C	D
10.	A	B	C	D	20.	A	B	C	D

TOTAL: .....

APPENDIX D

A Questionnaire for Student's Motivation

(derived from the motivation section of
the Motivated Strategies for Learning Questionnaire,
developed by a team of researchers from
the National Center for Research to Improve Postsecondary
Teaching and Learning (NCRIPTAL) and the School of Education
at the University of Michigan)

INSTRUCTIONS:

1. There are 31 statements in this questionnaire. Each statement asks about your motivation for the Educational Psychology course, especially the module that you have already studied.

2. Give the answer that truly describes you. Remember there are no right and wrong answers. Therefore, just answer as accurately as possible.

3. Use the scale below to indicate your condition. If you think the statement is very true of you, circle 7; if a statement is not at all true of you, circle 1. If the statement is more or less true of you, choose the number between 1 and 7 that best describes you.

STUDENT #: .....

		very true						not at all true
1.	In a course like this, I prefer materials which really challenge me so that I can learn new things.	1	2	3	4	5	6	7
2.	If I study in an appropriate way, I will be able to master the materials in this course.	1	2	3	4	5	6	7
3.	When I take a test, I think about how very weak I am in doing this test compared with other students.	1	2	3	4	5	6	7
4.	I think I will be able to apply what I have learned in this course in other courses.	1	2	3	4	5	6	7
5.	I believe that I can obtain an excellent grade in this course.	1	2	3	4	5	6	7
6.	I am sure that I am able to understand even the most difficult materials that are presented in this course.	1	2	3	4	5	6	7
7.	Obtaining a high grade in this course would be very satisfying to me at this time.	1	2	3	4	5	6	7
8.	During testing, I think about items on other parts of the test that I cannot answer.	1	2	3	4	5	6	7
9.	It is my fault if I do not learn the course materials.	1	2	3	4	5	6	7
10.	It is important to me to learn this course materials.	1	2	3	4	5	6	7
11.	At present the most important thing to me is to improve my GPA, so that my top priority for this course is to make a good grade.	1	2	3	4	5	6	7

		very true						not at all true
12.	I am sure that I am able to master the basic concepts which are taught in this course.	1	2	3	4	5	6	7
13.	If I can, I wish to obtain a better grade than the majority of other students in this course.	1	2	3	4	5	6	7
14.	When I am taking test, I think about the consequences of failure.	1	2	3	4	5	6	7
15.	I am sure that I am able to understand even the most complex materials which are presented in this course.	1	2	3	4	5	6	7
16.	In a course like this, I prefer materials that challenge my curiosity even though it is difficult to learn.	1	2	3	4	5	6	7
17.	I am very interested in this course.	1	2	3	4	5	6	7
18.	If I work hard enough, I will be able to understand this course.	1	2	3	4	5	6	7
19.	I feel uneasy and confused when taking tests.	1	2	3	4	5	6	7
20.	I am sure that I can complete the assignments and tests in this course well.	1	2	3	4	5	6	7
21.	I am expecting success in this course.	1	2	3	4	5	6	7
22.	Something which satisfies me in this course is making an effort to understand the materials of this course as fully as possible.	1	2	3	4	5	6	7
23.	I think the materials in this course are useful for me to learn.	1	2	3	4	5	6	7

		very true						not at all true
24.	If I had the opportunity to choose assignments, I would choose assignments which I can learn from even though they would not guarantee good grades.	1	2	3	4	5	6	7
25.	If I do not understand materials in this course, it is because I have not tried hard enough.	1	2	3	4	5	6	7
26.	I like the material in this course.	1	2	3	4	5	6	7
27.	Understanding the materials in this course is very important to me.	1	2	3	4	5	6	7
28.	I can feel my heart beating fast when I take tests.	1	2	3	4	5	6	7
29.	I am sure that I can master the material that is presented in this course.	1	2	3	4	5	6	7
30.	I want to be successful in this course because it is important to show my capability to my family, friends, leaders, or others.	1	2	3	4	5	6	7
31.	Taking into consideration the difficulty of the course, the capability of the tutor, and my capability, I think that I will be successful in this course.	1	2	3	4	5	6	7

Appendix E

The Demographic Characteristics of Students Who Participated

DEMOGRAPHIC CHARACTERISTICS	f	%
GENDER		
Male	28	20.59
Female	108	79.41
AGE		
18 - 24	13	9.56
25 - 34	110	80.88
35 - 44	11	8.09
45 -	2	1.47
EXPERIENCE		
0 - 4 years	32	23.53
5 - 8 years	28	20.59
9 - 12 years	76	55.88
GRADE THEY TEACH		
Grade I	16	11.77
Grade II	14	10.29
Grade III	25	18.38
Grade IV	29	21.32
Grade V	25	18.38
Grade VI	26	19.12
Not permanent	1	.74
EDUCATIONAL BACKGROUND*)		
SPG/KPG	130	95.59
SMOA	1	.74
SMA	5	3.67
NUMBER OF YEARS THEY GRADUATED FROM HIGH SCHOOL		
0 - 4 years	10	7.35
5 - 8 years	21	15.44
9 - 12 years	51	37.50
over 12 years	54	39.71

* SPG/KPG: a high school for elementary school teacher training
SMOA: a high school for athlete training
SMA: a general high school

Appendix F

Frequencies and Percentages of Students' Scores for Each Statement in the Questionnaire of the Quality of Printed Materials Exposure to Three Categories

STATEMENT NUMBER	LOW f	LOW %	MODERATE f	MODERATE %	HIGH f	HIGH %
ATTENTION						
#2	9	6.62	18	13.24	109	80.15
#8	7	5.15	17	12.50	112	82.35
#10	8	5.88	4	2.94	124	91.18
#11	35	25.74	36	26.47	65	47.79
#14	26	19.12	14	10.29	96	70.59
#16	10	7.35	42	30.88	84	61.76
#19	5	3.68	5	3.68	126	92.65
#21	33	24.26	34	25.00	69	50.74
#23	9	6.62	10	7.35	117	86.03
#26	7	5.15	16	11.76	113	83.09
#27	13	9.56	25	18.38	98	72.06
#29	25	18.38	40	29.41	71	52.21
RELEVANCE						
#6	6	4.41	9	6.62	121	88.97
#9	-	-	-	-	136	100.00
#15	9	6.62	30	22.06	97	71.32
#17	12	8.82	26	19.12	98	72.06
#22	1	.74	5	3.68	130	95.59
#28	7	5.15	2	1.47	127	93.38
#31	-	-	-	-	136	100.00
CONFIDENCE						
#1	23	16.91	20	14.71	93	68.38
#3	44	32.35	43	31.62	49	36.03
#4	8	5.88	15	11.03	113	83.09
#7	68	50.00	42	30.88	26	19.12
#12	16	11.76	57	41.91	63	46.32
#18	19	13.97	49	36.03	68	50.00
#24	13	9.56	23	16.91	100	73.53
#32	9	6.62	14	10.29	113	83.09
#33	3	2.21	9	6.62	124	91.18

continued

STATEMENT NUMBER	LOW f	LOW %	MODERATE f	MODERATE %	HIGH f	HIGH %
SATISFACTION						
#5	9	6.62	10	7.35	117	86.03
#13	1	.74	9	6.62	126	92.65
#20	10	7.35	18	13.24	108	79.41
#25	3	2.21	27	19.85	106	77.94
#30	3	2.21	6	4.41	127	93.38
#34	6	4.41	2	1.47	128	94.12

Note. n = 136

Appendix G

Frequencies and Percentages of Students' Scores for the Questionnaire of the Quality of Printed Materials Exposure to Demographic Characteristics

DEMOGRAPHIC CHARACTERISTICS	LOW f	LOW %	MODERATE f	MODERATE %	HIGH f	HIGH %
GENDER:						
Male	-	-	10	7.35	18	13.24
Female	4	2.94	33	24.26	71	52.21
AGE:						
18 - 24	-	-	8	5.88	5	3.68
25 - 34	2	1.47	30	22.06	78	57.35
35 - 44	2	1.47	4	2.94	5	3.68
45 -	-	-	1	.74	1	.74
EXPERIENCE						
0 - 4	1	.74	14	10.29	17	12.50
5 - 8	1	.74	6	4.41	21	15.44
9 - 12	2	1.47	23	16.91	51	37.50
GRADE THEY TEACH*)$_1$						
LOWER	1	.74	21	15.44	33	24.26
HIGHER	3	2.21	22	16.18	55	40.44
NOT PERMANENT	-	-	-	-	1	.74
EDUCATION*)$_2$						
SPG/KPG	2	1.47	40	29.41	88	64.71
SMOA	-	-	1	.74	-	-
SMA	2	1.47	2	1.47	1	.74
THE NUMBER OF YEARS THEY GRADUATED FROM HIGH SCHOOL						
0 - 4	-	-	6	4.41	5	3.68
5 - 8	-	-	7	5.15	13	9.56
9 - 12	3	2.21	14	10.29	34	25.00
OVER 12	1	.74	16	11.76	37	27.21

Note. n = 136

*)$_1$ higher grade (grade IV, V, or VI)
lower grade (grade I, II, or III)

*)$_2$ SPG/KPG: a high school for elementary school teacher training
SMOA: a high school for athlete training
SMA: a general high school

Appendix G1

Frequencies and Percentages of Students' Scores for the Questionnaire of the Quality of Printed Materials in Attention Characteristic Exposure to Demographic Characteristics

DEMOGRAPHIC CHARACTERISTICS	LOW f	LOW %	MODERATE f	MODERATE %	HIGH f	HIGH %
GENDER:						
Male	-	-	12	8.82	16	11.76
Female	5	3.68	52	38.24	51	37.50
AGE:						
18 - 24	-	-	10	7.35	3	2.21
25 - 34	3	2.21	49	36.03	58	42.65
35 - 44	2	1.47	4	2.94	5	3.68
45 -	-	-	1	.74	1	.74
EXPERIENCE						
0 - 4	1	.74	17	12.50	14	10.29
5 - 8	2	1.47	10	7.35	16	11.76
9 - 12	2	1.47	37	27.21	37	27.21
GRADE THEY TEACH*)$_1$						
LOWER	2	1.47	32	23.53	21	15.44
HIGHER	3	2.21	32	23.53	45	33.09
NOT PERMANENT	-	-	-	-	1	.74
EDUCATION*)$_2$						
SPG/KPG	3	2.21	61	44.85	66	48.53
SMOA	-	-	1	.74	-	-
SMA	2	1.47	2	1.47	1	.74
THE NUMBER OF YEARS THEY GRADUATED FROM HIGH SCHOOL						
0 - 4	-	-	8	5.88	2	1.47
5 - 8	-	-	9	6.62	12	8.82
9 - 12	4	2.94	24	17.65	23	16.91
OVER 12	1	.74	23	16.91	30	22.06

Note. n = 136
*)$_1$ higher grade (grade IV, V, or VI);
lower grade (grade I, II, or III)
*)$_2$ SPG/KPG: a high school for elementary school teacher training
SMOA: a high school for athlete training
SMA: a general high school

Appendix G2

Frequencies and Percentages of Students' Scores for the Questionnaire of the Quality of Printed Materials in Relevance Characteristic Exposure to Demographic Characteristics

DEMOGRAPHIC CHARACTERISTICS	LOW f	LOW %	MODERATE f	MODERATE %	HIGH f	HIGH %
GENDER:						
Male	-	-	6	4.41	22	16.18
Female	-	-	7	5.15	101	74.26
AGE:						
18 - 24	-	-	1	.74	12	8.82
25 - 34	-	-	8	5.88	102	75.00
35 - 44	-	-	4	2.94	7	5.15
45 -	-	-	-	-	2	1.47
EXPERIENCE						
0 - 4	-	-	3	2.21	29	21.32
5 - 8	-	-	4	2.94	24	17.65
9 - 12	-	-	6	4.41	70	51.47
GRADE THEY TEACH*)$_1$						
LOWER	-	-	4	2.94	51	37.50
HIGHER	-	-	9	6.62	71	52.21
NOT PERMANENT	-	-	-	-	1	.74
EDUCATION*)$_2$						
SPG/KPG	-	-	11	8.09	119	87.50
SMOA	-	-	-	-	1	.74
SMA	-	-	2	1.47	3	2.21
THE NUMBER OF YEARS THEY GRADUATED FROM HIGH SCHOOL						
0 - 4	-	-	1	.74	9	6.62
5 - 8	-	-	1	.74	20	14.71
9 - 12	-	-	6	4.41	45	33.09
OVER 12	-	-	5	3.68	49	36.03

Note. n = 136

*)$_1$ higher grade (grade IV, V, or VI)
lower grade (grade I, II, or III)

*)$_2$ SPG/KPG: a high school for elementary school teacher training
SMOA: a high school for athlete training
SMA: a general high school

Appendix G3

Frequencies and Percentages of Students' Scores for the Questionnaire of the Quality of Printed Materials in Confidence Characteristic Exposure to Demographic Characteristics

DEMOGRAPHIC CHARACTERISTICS	LOW f	LOW %	MODERATE f	MODERATE %	HIGH f	HIGH %
GENDER:						
Male	-	-	21	15.44	7	5.15
Female	11	8.09	68	50.00	29	21.32
AGE:						
18 - 24	-	-	11	8.09	2	1.47
25 - 34	7	5.15	71	52.21	32	23.53
35 - 44	4	2.94	6	4.41	1	.74
45 -	-	-	1	.74	1	.74
EXPERIENCE						
0 - 4	3	2.21	22	16.18	7	5.15
5 - 8	1	.74	17	12.50	10	7.35
9 - 12	7	5.15	50	36.76	19	13.97
GRADE THEY TEACH*)$_1$						
LOWER	5	3.68	37	27.21	13	9.56
HIGHER	6	4.41	52	38.24	22	16.18
NOT PERMANENT	-	-	-	-	1	.74
EDUCATION*)$_2$						
SPG/KPG	8	5.88	87	63.97	35	25.74
SMOA	-	-	1	.74	-	-
SMA	3	2.21	1	.74	1	.74
THE NUMBER OF YEARS THEY GRADUATED FROM HIGH SCHOOL						
0 - 4	-	-	9	6.62	1	.74
5 - 8	1	.74	13	9.56	7	5.15
9 - 12	6	4.41	27	19.85	18	13.24
OVER 12	4	2.94	40	29.41	10	7.35

Note. n = 136
*)$_1$ higher grade (grade IV, V, or VI)
lower grade (grade I, II, or III)
*)$_2$ SPG/KPG: a high school for elementary school teacher training
SMOA: a high school for athlete training
SMA: a general high school

Appendix G4

Frequencies and Percentages of Students' Scores for the Questionnaire of the Quality of Printed Materials in Satisfaction Characteristic Exposure to Demographic Characteristics

DEMOGRAPHIC CHARACTERISTICS	LOW f	LOW %	MODERATE f	MODERATE %	HIGH f	HIGH %
GENDER:						
Male	-	-	3	2.21	25	18.38
Female	-	-	11	8.09	97	71.32
AGE:						
18 - 24	-	-	3	2.21	10	7.35
25 - 34	-	-	6	4.41	105	77.21
35 - 44	-	-	5	3.68	5	3.68
45 -	-	-	-	-	2	1.47
EXPERIENCE						
0 - 4	-	-	6	4.41	26	19.12
5 - 8	-	-	1	.74	27	19.85
9 - 12	-	-	7	5.15	69	50.74
GRADE THEY TEACH*)$_1$						
LOWER	-	-	6	4.41	49	36.03
HIGHER	-	-	8	5.88	72	52.94
NOT PERMANENT	-	-	-	-	1	.74
EDUCATION*)$_2$						
SPG/KPG	-	-	11	8.09	119	87.50
SMOA	-	-	-	-	1	.74
SMA	-	-	3	2.21	2	1.47
THE NUMBER OF YEARS THEY GRADUATED FROM HIGH SCHOOL						
0 - 4	-	-	2	1.47	8	5.88
5 - 8	-	-	3	2.21	18	13.24
9 - 12	-	-	5	3.68	46	33.82
OVER 12	-	-	4	2.94	50	36.76

Note. n = 136

*)$_1$ higher grade (grade IV, V, or VI)
lower grade (grade I, II, or III)

*)$_2$ SPG/KPG: a high school for elementary school teacher training
SMOA: a high school for athlete training
SMA: a general high school

Appendix H

Frequencies and Percentages of Students' Scores for Each Statement in the Questionnaire of Students' Motivation Exposure to Three Categories

STATEMENT NUMBER	LOW f	LOW %	MODERATE f	MODERATE %	HIGH f	HIGH %
VALUE						
#1	8	5.88	8	5.88	120	80.24
#4	13	9.56	21	15.44	102	75.00
#7	4	2.94	1	.74	131	96.32
#10	1	.74	-	-	135	99.26
#11	3	2.21	1	.74	132	97.05
#13	2	1.47	8	5.88	126	92.65
#16	5	3.68	7	5.15	124	91.18
#17	3	2.21	10	7.35	123	90.44
#22	3	2.21	4	2.94	129	94.85
#23	1	.74	1	.74	134	98.53
#24	38	27.94	16	11.76	82	60.29
#26	2	1.47	10	7.35	124	91.18
#27	1	.74	-	-	135	99.26
#30	21	15.44	6	4.41	109	80.15
EXPECTANCY						
#2	2	1.47	-	-	134	98.53
#3	50	36.76	17	12.50	69	50.74
#8	82	60.29	11	8.09	43	31.62
#9	10	7.35	4	2.94	122	89.71
#14	93	68.38	10	7.35	33	24.26
#18	2	1.47	1	.74	133	97.79
#19	58	42.65	9	6.62	69	50.74
#25	21	15.44	4	2.94	111	81.62
#28	57	41.91	11	8.09	68	50.00
AFFECTIVE						
#5	13	9.56	21	15.44	102	75.00
#6	37	27.21	22	16.18	77	56.62
#12	9	6.62	11	8.09	116	85.29
#15	35	25.74	14	10.29	87	63.97
#20	16	11.76	16	11.76	104	76.47
#21	-	-	1	.74	135	99.26
#29	10	7.35	13	9.56	113	83.09
#31	5	3.68	7	5.15	124	91.18

Note. n = 136

Appendix I

Frequencies and Percentages of Students' Motivation Scores for Three Categories Exposure to Demographic Characteristics

DEMOGRAPHIC CHARACTERISTICS	LOW f	LOW %	MODERATE f	MODERATE %	HIGH f	HIGH %
GENDER:						
Male	-	-	14	10.29	14	10.29
Female	-	-	47	34.56	61	44.85
AGE:						
18 - 24	-	-	4	2.94	9	6.62
25 - 34	-	-	50	36.76	60	44.12
35 - 44	-	-	6	4.41	5	3.68
45 -	-	-	1	.74	1	.74
EXPERIENCE						
0 - 4	-	-	12	8.82	20	14.71
5 - 8	-	-	13	9.56	15	11.03
9 - 12	-	-	36	26.47	40	29.41
GRADE THEY TEACH*)$_1$						
LOWER	-	-	25	18.38	30	22.06
HIGHER	-	-	36	26.47	44	32.35
NOT PERMANENT	-	-	-	-	1	.74
EDUCATION*)$_2$						
SPG/KPG	-	-	58	42.65	72	52.94
SMOA	-	-	1	.74	-	-
SMA	-	-	2	1.47	3	2.21
THE NUMBER OF YEARS THEY GRADUATED FROM HIGH SCHOOL						
0 - 4	-	-	4	2.94	6	4.41
5 - 8	-	-	7	5.15	14	10.29
9 - 12	-	-	24	17.65	27	19.85
OVER 12	-	-	26	19.12	28	20.59

Note. n = 136

*)$_1$ higher grade (grade IV, V, or VI)
lower grade (grade I, II, or III)

*)$_2$ SPG/KPG: a high school for elementary school teacher training
SMOA: a high school for athlete training
SMA: a general high school

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