Instructional Package of Development of Skill in Using Fine Motor of Children for Children with Intellectual Disabilities

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Abstract. This research has the following purposes: 1) to find the efficiency of the self-learning activity set on development of skill in using fine motor of children with intellectual disabilities., 2) to compare the abilities to use the small muscles after the study more than before the study of children with intellectual disabilities, who made study with the self-learning activity on development of small muscles use., 3) to study the satisfaction of the children with intellectual disabilities using the self-learning activity on development of small muscles use. The sample groups on the research are the children with intellectual disabilities of the special education Maha Chakri Sirindhorn Provincial Nakhon Nayok Center in the school year 2016, for 7 children. The tools used on the research consist of the self-learning activity on development of small muscles use for the children with intellectual disabilities of the special, the observation form of abilities of small muscles before and after using the activity set and the observation form of satisfaction of the children with intellectual disabilities of the special towards the self-learning activity set on development of small muscles for the children with intellectual disabilities of the special. The statistics used on the research include the percentage, mean value, standard deviation and the t-test for dependent sample. From the research, it was found that the self-learning activity set on development of small muscles use for children with intellectual disabilities of the special is efficient based on the criteria in average equal to 77.78/76.51, the educational coefficient of the student after the study higher than before the study with average points before the study equal to 55.14 and S.D. value equal to 3.72. The average points after the study equal to 68.86, S.D. value equal to 2.73, t-test value before and after the study equal to 7.94, which are different significantly on statistics at the level 0.05 and the satisfaction observation form of the student towards the self-learning activity on small muscles use for he down syndrome children with average value equal to 4.58 in the considerable level.

1. Introduction
The instructional package can be change behaviours and solving problem, activities embedded in contextualized, or real-life, scenarios; use of manipulative techniques to reinforce concepts; and a self-monitoring component, a critical behaviour management component to instructional interventions for students. Its focus, to the effectiveness of each approach to enhance the learning performances of
students. [1] The development of skill in using fine motor of children for Down Syndrome Children has been for educational use in the form of Down syndrome use of Down syndrome as an educational tool has provided learners and educators with a wider range of new and interesting learning experiences and teaching environments that are not possible in traditional in-class education. Down syndrome has been developed mainly by instructional designers using traditional instructional design models such as instructional systems design, cognitive flexibility theory and constructivist learning environments [2]. However, many of these approaches still lack two important considerations needed for implementing learning based on the instructional package: 1) integration of the learner participant with instructional design and social context, 2) development of a process and evaluation framework to improve the overall quality of Down syndrome. This study addresses these two weaknesses from the perspective of the overall quality of Down syndrome, education environment. This research aims to synthesize an instructional design framework from mental process, learning by doing approach, and social context, and to create an instructional design framework for special education. According to Thailand’s National Education Act 1999, ‘In organizing the learning process, educational institutions and agencies concerned shall provide training in thinking process, management, how to face various situation and application of knowledge for obviating and solving problems’. This is to make Down syndrome, Thai learners capable of developing their own self and able to compete with the world’s knowledge-based economy. Moreover, section 66 also reads ‘learners shall have the right to develop their capabilities for utilization of technologies for education as soon as feasible so that they shall have sufficient knowledge and skills in using these technologies for acquiring knowledge themselves on a continual lifelong basis’. The aim is to make quality of Down syndrome, Thai learners capable of using technology to seek knowledge. [3] Although quality of Down syndrome in the past relied heavily on teachers in the classroom to guide their study, learning demands greater self-regulation and discipline from learners. As such, teachers need to come into center stage to guide their learners, and such action might be different from the ideals of supervision and facilitation of the past [4]. To reflect on the current issue about the learning which requires self-regulation from learners, researchers need to think of ways which can comply with the learner-based pedagogy in the Thai education environment with the hope of developing an instructional model for teachers and educators in dealing with such issue. It is a fact that any instructional design model is intended to prepare learners for the world of work and ‘link[s] competence and competency to performance’. Both competence and competency are derived from professional standards which are essential to what learners are required to do. Courses in education provide Down syndrome with opportunities and experience in hands-on learning [5]. When instructional package is introduced to quality of Down syndrome education, practical or hands on elements are transformed into conceptual understanding [6]. Students can neither see nor touch the elements of their subject. When teachers introduce abstract concepts into vocationally based learning [7] there can be erroneous notions about the concepts taught in class when only traditional materials are available [8].

Therefore, instructional package enhanced and student-centered learning environments can facilitate the learning and understanding of abstract concepts due to the fact that students can notice graphically displayed changes of concrete experience [9]. Effective instructional packages environments allow students to work socially with each other. To achieve it, the core elements are the presence of the teacher, the availability of resources and the purposive interaction with media by students [10]. Although general education courses are widely used in all educational levels, it should be noticed that quality of Children with intellectual disabilities education needs both academic and practical approaches. Each approach requires different instructional design frameworks. There are three frameworks of instructional packages which will be discussed in this paper: mental processes, learning by doing approach, and social context. With these three models as a guide, a questionnaire was developed to submit to educational experts. Based on the Delphi technique, these three methods were synthesized in order to create a new method for vocational training, which will be applied to the teaching of vocational [11]. The researcher synthesized the three theories mentioned above by using Delphi technique so that experts were able to express their opinion on what they agreed in order to create an instructional framework that complies with psychological principles according to instructional design framework for autonomy.
framework will help learners achieve their learning objectives effectively and efficiently, as well as help
learners to understand in a faster and more stable way. [12] Theoretical frameworks provide a myriad
of ways in which Instructional Package-based educational practicums may be utilized, based upon the
instructional and pedagogical needs of the vocational course. The development of instructionally
effective learning environments that meet these pedagogical needs requires the application of
appropriate instructional design principles. Upon designing an instruction, the underlying pedagogical
philosophy and application of learning theories, including constructivism and constructionism, will
influence decisions regarding what instructional strategies may be adopted [4]. Furthermore, the
relationships between the design process framework and the effectiveness of the media-based
environment will be discussed.

2. Review of the Literature
This study develops a framework based on three theories which include learning theories in mental
processes, learning by doing approach, and social context. Each of the theories involves the psychology
learning as following.

2.1. Mental Processes theories
Many experts focus on mental processes and consider the ways in which thoughts occur to the ways in
which behaviorism arose from mental processes. This system examines the outcomes or behaviors of
learning. Instructional design needs to be applicable to cognitive, behavioral, and attitudinal learning in
that the strategies work together to create understanding [14], are applicable [9], for creating cognition
and following elements of situated cognition, for building on cognitive or mental phenomena [16],
cognitive activity [17], and cognitive organizers [18], and operating on of processes of memory. The
mental processes of this instructional design framework are applicable to cognitive, behavioral, and
attitudinal learning. Therefore, as an example of a micro theory, it provides a set of procedures to follow
for each instructional event to enhance learning. The learning processes identify nine events of
instruction, which are tied to cognitive strategies learning theory. Note that the first event in the theory
of instructional design framework is ‘attention’, which parallels that of cognitive strategies learning
theory. The next event, ‘informing of the objectives’ further activates a process of getting the trainees’
‘attention’ focused. The stimulation of the recall of requisite learning ties in with the activation of
memory. The nine events of instruction will be examined in more detail with reference to the relevant
sections of social learning theory for additional information [19]. Gagné developed a nine-step process
called the events of construction. These details how an instructional event corresponds with an internal
mental process in the learner. The interactive content in an instructional package course can keep the
learners’ attention as described in Gagné’s nine events of instruction [20].

| Instructional Event | Internal Mental Process                               |
|--------------------|-------------------------------------------------------|
| 1. Gain attention  | Stimuli activates receptors                           |
| 2. Inform learners of objectives | Creates level of expectation for learning |
| 3. Stimulate recall of prior learning | Retrieval and activation of short-term memory |
| 4. Present the content | Selective perception of content                        |
| 5. Provide “learning guidance” | Semantic encoding long term memory                   |
| 6. Elicit performance (practice) | Responds to questions to enhance encoding and verification |
| 7. Provide feedback | Reinforcement and assessment of correct performance   |
| 8. Assess performance | Retrieval and reinforcement of content as final evaluation |
| 9. Enhance retention and transfer to the job | Retrieval and generalization of learned skill to new situation |
2.2. Learning by doing theories
The most popular and effective process of learning ever adopted by psychology and the teaching-learning process is that of learning by doing. In these learning processes the activities are based on practical activities to create skills for occupations or vocations. There is reference to experience in group participant of techniques or technology. There is a focus on constructivist learning theory, the ways of doing and thinking, [26], and humanist activities in which thoughts occur [15]. The literature agrees that learning by doing, which focuses on knowledge construction based on the learner’s previous experience, is a good fit for instructional packages [27][28]. Entrenched in the learning processes theories advanced by Dewey (1916), Piaget (1972), and Bruner (1990), constructivism learning theory is defined as the active construction of new knowledge based on a learner’s prior experience [28]. Woolfolk states, ‘the key idea is that students actively construct their own knowledge: the mind of the student mediates input from the outside world to determine what the student will learn. Learning is active mental work, not passive reception of teaching’. [30] Honebeins advanced a set of goals to aid the design of constructivism in learning settings. There are seven goals. These are: to provide experience with the knowledge construction process; to provide experience in and appreciation of multiple perspectives; to embed learning in realistic and relevant contexts; to encourage ownership and voice in the learning process; to embed learning in social experience; to encourage the use of multiple modes of representation and to encourage self-awareness in the knowledge construction process [29].

2.3. Social context theories
There is focus on constructionism [26]; knowledge-building, situating constructionism, society and situation [31], situated learning, social negotiation, social constructionism and constructivism, and social contexts. These theories draw upon the premise that there must be a social context in order for the learner to build and develop his ideas [33]. An idea must be created. It cannot be transmitted by a teacher, peer, or book. An individual makes an idea. Constructionism then adds to this fundamental notion, that knowledge is constructed more effectively when the individual is engaged in the construction of ‘personally meaningful products’. In constructionism, the effect of is as important as gaining knowledge. When placed in the context of vocational Internet-based training, the curriculum must be carefully designed to incorporate the learner and excite in him the desire for the outcome. The training that occurs online should foster a desire to make meaningful online tools. Otherwise, it is argued, the learner will not engage. Socially, an instructional design model is intended to prepare learners for the world of work and ‘link[s] competence and competency to performance’. Both competence and competency are derived from professional standards which are essential to what learners are required to do. Courses in quality of Children with intellectual disabilities education provide learners with opportunities and experience in hands-on learning [6]; [7]). When instructional packages introduced to quality of Children with intellectual disabilities education, practical or hands on elements are transformed into conceptual understanding. This might be a significant drawback due to the fact that students can neither see nor touch the elements of their subject. There are reports which discuss how teachers introduce abstract concepts into vocationally based learning [8] yet there can be erroneous notions about the concepts taught in class when only traditional materials are available.

3. Methods
This study aims 1) to synthesize an instructional design framework from mental process, learning by doing approach, and social context, and create an Instructional package instructional design framework for quality of Children with intellectual disabilities education. The following data were used to conduct analyses to develop valid and reliable perceived attribute measures. 2) to find the efficiency of the instructional package of development of skill in using fine motor of Down Syndrome Children., 3) to compare the abilities to use the small muscles after the study more than before the study., and 4) to study the satisfaction of Down syndrome children using the instructional package. Seventeen experts were chosen through the purposive sampling method. Seven experts were qualified in educational psychology and ten in educational technology. They all had a doctoral degree
and had worked for over five years in at least the position of Assistant Professor. The sample groups on
the research are the Down syndrome of the Wat Bang Choad School, for 7 children.

The operation was done by using three types of tools: 1) Brainstorming, 2) Evaluation and 3) Re-evaluation.

3.1. Brainstorming
Researchers conducted semi-structured interviews with 17 experts for the first round: brainstorming of
experts’ opinions would be related to the framework developed from mental processes, learning by
doing approach and social context. Researchers’ analyzed the interviews of the experts’ opinions about
each idea. The details interview form was in four parts as follows: ‘key ideas and principles, teaching-
learning activities strategies, teaching-learning environments, stages of the instructional sequence.
Researchers synthesized the first round of opinions of the experts using a Liker’s five-point rating scale.
After that an instructional design framework was prepared covering mental processes, learning by doing,
and social context.

3.2. Evaluation
Researchers evaluated the ideas using a Likert five-point rating scale questionnaire for the second round
as shown in the evaluation of the 17 experts’ ideas on mental processes, learning by doing, and social
context concerning an instructional design framework for quality of Children with intellectual
disabilities education. Researchers selected the items from the results of questionnaire I. This meant that
all key ideas principles, teaching-learning activities strategies, teaching-learning environments, and
stages of instructional sequence comprising mental processes, learning by doing, and social context were
pooled together as similarities or differences. The similarities meant that most of the 17 experts agreed
while the differences meant the reverse. The results of the synthesis of similarities and differences led
the researchers to develop a diagram chart Then, the 17 experts were required to respond “Yes” or
“No” to questionnaire II.

3.3. Re-evaluation
Researchers selected the items from the results of questionnaire II. These included all key ideas and
principles, teaching-learning activities strategies, teaching-learning environments, and stages of
instructional sequence comprised from mental processes, learning by doing, and social context. The
findings were pooled together as similarities or differences. The similarities meant that most of the 17
experts agreed while the differences meant the reverse. The results of the synthesis were used to develop
questionnaire III. The researchers created an instructional design framework for quality of Children with
intellectual disabilities education. The research involved a framework with the sample for the study
consisting of 100 instructors who developed instructional packages in the quality of Children with
intellectual disabilities education fields of electrical engineering, electronics, civil engineering, and
mechanics from several faculties of technical education in universities in Thailand. After the researchers
concluded questionnaire III the framework for Instructional Package Instructional Design Framework
for Quality of Children with intellectual disabilities education was developed.

4. Data Analysis
An initial study was conducted with the experts and instructors. The survey was on a 5-point Likert-type
scale. Data collection was done by questionnaires which were analyzed to determine the results. Data
analysis was done using SPSS/FW (Statistical Package for Social Science/for Windows) software. The
part with selection items was analyzed using frequency and percentage. The part with five scales was
analyzed using mean (X), standard deviation (S.D.) and correlation. The levels of agreement from
respondents were as follows: Average Score of 1.00 - 1.49 means strongly disagree whereas average
score of 4.50-5.00 means definitely agree. Data analysed by using Mind Manager Application. Statistical
procedures for data analysis included, the E1/E2, mean, standard deviation, and t-test for dependence
samples.
5. Data Collection
The research conducted in the following steps:
- Review the literature regarding Comparison of Selected Psychology Theories as in Gagne's, Constructivism, and Constructionism.
- Developed a semi-questionnaire regarding Comparison of Selected Psychology Theories as in Gagne's, Constructivism, and Constructionism.
- Collect data and interview using the questionnaire developed.
- Analyze the data and conclude the results (a) the instruments were Instructional package according to GCC model in instructional package according to GCC model. (b) an achievement test and a questionnaire to assess students’ opinions toward the Instructional package according to GCC model.
- From the results of this GCC model perspective on instructional package of development of skill in using fine motor of children for Down syndrome children, developers as well as instructors can apply the GCC model to the development of Instructional Package.
- The Down syndrome children using the instructional package of development of skill in using fine motor for improve vocational training.

6. Results and discussion
The results of this research focus on three clusters that create the framework for the theories, and also include aspects of the learning process. The study allowed for the expression of experts’ opinions, and similarities and differences could be described in the framework. This is presented in the three parts that follow [33].
- The GCC model orders to increase learner's thinking attributes, Encouraging interests, informing expected to learn results of students, Building conditions to arouse interests to give rise to learning procedure, giving useful advice for learning, finding answers and altering ideas, finding own wit thinking and abilities to transfer knowledge. [7] These four steps as following: Principle: Creating situations, organization knowledge from experience. (Instructors), Encouraging learners to originate learning. (Instructors), Creating atmosphere of opinions exchanging. (Instructors), Linking students’ ideas. (Instructors), the Creating experience of learning new things. (Instructors).
- Stages of teaching-learning activities, as following: a) Activate pre-knowledge on one's own b) Exchange ideas and improving mistakes. c) Building organization knowledge by ways of understanding, memorizing, analyzing and transfer d) Creating ideas, reflexive thinking and initiate thinking.
- Components of teaching-learning management: Learners, Instructors,
- Teaching-learning models; a) Independent Learning. b) Drills and practices. c) Instruction. d) Tests instruction. e) Games education. f) Dependent Learning. g) Collaborative learning. h) Project-based Learning, Group Process Learning. [8]
First, activate prior-knowledge: inform expected outcomes of learners; manipulate the condition for inspiring a thinking process, and provide learning guidelines.

Second, fine question: learning control techniques are comprised of the following three steps: (1) Search for answers and adapt or change their thinking process. (2) Reflect their thinking by memorizing, analyzing, and application. This second move can be made through three levels of control: (1) program control, (2) learner control.

Third, judge discovery: learning control techniques refer to learners discovering their own learning. and Fourth, transfer knowledge: these techniques include task-based learning, learning contracts, lecture, discussion, self-directed learning, mentorship, small group work, project, collaborative learning, case study, and forum.

Figure 1. The GCC model. [35]

The process of model synthesis, as well as operant conditioning and learning control techniques which are keys of the new paradigm, will be explained and discussed. The development of skill in using fine motor for improve vocational training is the systematic development of instructional specifications, using learning and instructional theory to ensure the quality of instruction. It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs. It includes the development of instructional materials and activities and tries out an evaluation of all instruction and learner activities. [32], [33]. The development of skill in using fine motor for improve vocational training according to GCC model in Down syndrome children should facilitate Self–Discovery Learning (SDL), because of these reasons, based on experts’ opinions of selected psychology theories as in three theories, and as shown in figure 3. The GCC model. [14]

In this article, the researchers have offered a framework and design process for the Instructional Package environment. The implementation of the GCC model involved three steps including a consideration of various aspects of information, conceptual development, psychology theories and evaluation of the overall quality of the system environment. In particular, the research aims to improve the design process and usability of the Internet-based environment. The study also confirms that for Instructional Package for Quality of Children with intellectual disabilities education to be successful, various aspects of the online environment should be considered such as the application of domain knowledge, conceptual theory, psychology theories, and evaluation of the overall quality of the design process.

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