

# The Skill Approach in Education



# The Skill Approach in Education:

*From Theory to Practice*

Edited by

Firdevs Güneş and Yusuf Söylemez

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## PREFACE

Today's societies are divided into the information society and the knowledge society. In the information society, information is stored and transferred to others through processing questions, such as “what, where, why, how, and when.” In the knowledge society, the emphasis is placed on the use and production of information rather than storage. People are taken to the center and focus on areas such as individual development, coexistence, peace, democracy and justice. For this reason, the knowledge society requires different practices in education and training.

In the information society, various sources are used, such as information, knowledge and skill. Information is transferred from the outside to the individual. However, the knowledge is structured by the person. Knowledge is formed as a result of various mental efforts. It is shared and improved by addition and editing. Information and data are used in the knowledge production process. Skills are created by transferring knowledge to practice. Skill is the process of activating knowledge. Skill is the power to use all mental and physical resources of an individual to do a job. Information and knowledge includes the past while the skill includes the future and creates a viewpoint towards information production.

Education has to adapt contemporary education approaches and practices to create the knowledge society. In this process, priority should be given to the skills that constitute the basis of lifelong learning and progress, basic skills, language and mental skills. In the learning process, it is necessary to develop skills such as understanding the learned, transferring it to practice, and structuring in the mind instead of getting knowledge through memorizing. On the other hand, most of the information learned at school is superficial and students do not know how to apply what they learn in the field. This situation causes important problems in terms of attaining educational goals, improving the language, and developing the mental, social and emotional skills of the students. The skill approach aims to increase the effect and efficiency of education, improve the knowledge and skills of individuals and train individuals who will give direction to the future.

In this book, which is prepared with this understanding, various skills were included, such as concepts related to skills, basic skills, language skills, science and mathematics skills, psycho-social skills, visual arts skills.

Prof. Dr. Firdevs GÜNEŞ  
Editor in Chief

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PART I

CONCEPT OF SKILL UNDERSTANDING

EDITOR: SABRI SIDEKLI

# CHAPTER ONE

## SKILL BASED APPROACH AND TEACHING SKILL

FİRDEVS GÜNEŞ

### **Introduction**

Education is the single most important power developing individuals and shaping their future. To reach that power, it is necessary to improve students' high-order language and cognitive skills. To do that in the field of education, approaches and models that centre on students are adopted. Constructivist approach, student-centred education, activity and skills-based approaches can be listed among such approaches. These approaches focus on developing such skills as reasoning, comprehension, questioning, problem solving, researching and evaluation. Using these skills, students are expected to improve their learning to learn cooperation, conflict management, and social and citizenship skills. As a result, teaching skills rather than knowledge stands out in the field of education and students are expected to have the skills of the future called the 21<sup>st</sup> century skills.

Today, information and technological developments grow at a rapid pace. Production, trade and investment methods change for good and for all. Social and political life becomes more and more complicated, and in this process, active citizenship becomes more essential. Changes in knowledge-based societies and economies necessitate individuals to rapidly equip themselves with new skills. Otherwise, employees have difficulties in adapting to business life, and it becomes more difficult to find a job. These developments indicate that societies will be facing important problems in the future. Education needs to address the aforementioned conditions and educate individuals who adapt to these rapid developments and continue learning for a lifetime. That is to say, education has to prepare students for an ever-complicating society and international business life. In this process, competencies like active and independent learning, assertiveness, creativity, developing oneself, and

lifelong learning become more and more important. Education based on teaching encyclopaedic information should be abandoned. Encyclopaedic information gets old in a very short time and efforts turn in vain. Therefore, equipping students with individual and social competencies required in business life becomes more important.

### **What is skill?**

The term skill has a long history in the field of education. In the past, the term “skill” was used to represent behaviours that can be observed and which required professionalism, and the focus was on improving the behaviour. Today, on the other hand, the term skill focuses on the mind and what is understood from the word is improving language, cognitive and social competencies, and the focus is on improving these competencies in the process of education (Boutin, 2004). This change is also reflected in the definitions of the term “skill.” In old definitions, skill is defined as a “collection of behaviours.” To illustrate, Lévy-Leboyer defines skill as “*a collection of behaviours that enables performing a job efficiently and effectively and that requires proficiency.*” In the new definitions, on the other hand, the mind stands out as a dimension. For instance, according to Tardif, skill is a system of information (procedural, conditional and declarative) used in such situations such as identifying problems, producing solutions and cognitive processes (Bronckart, 2009). As for Piaget and Vygotsky, skill is the integration of new knowledge obtained through physical and social interaction with prior knowledge in mind and construction of knowledge (Quiesse, 2007). To some authors, skill is the collection of an individual’s personal and cognitive capacity. Briefly, today the term skill is considered a “*collection of knowledge and cognitive processes*” (Güneş, 2014).

Skill is not behaviour. Behaviour is a reaction given to a stimulant. Skill, on the other hand, is a process that an individual performs consciously, actively and wishfully, using his/her cognitive and physical resources. Skill cannot be taught easily through education; it is developed through active efforts of an individual and based on real practices. Skill necessitates the activation of various cognitive, emotional and physical resources. It can neither be developed through books or information based on certain theories nor through guiding (Quiesse, 2007). Therefore, the purpose of education in a skill-based approach is not to transfer information to the students but on the contrary, to enable them to have the skill to do a job. Skill is neither information nor behaviour or practical knowledge. These are only sources of skill. A student might not have all of

these sufficiently but s/he should learn to activate the necessary cognitive, emotional and social resources when performing a task (Hirtt, 2009). On the other hand, it is not possible to talk about the sufficiency of a skill. Individuals gradually develop various competencies in their lifetime depending on the changing knowledge and conditions; the level of skill changes as well.

Skill is one's capacity to perform a task. This capacity has three key components: knowing, taking action and performing a task/duty. *Knowing* refers to having the knowledge to perform that skill. *Taking action* refers to activating the practical knowledge and cognitive resources related to the task/duty. Cognitive resources are such processes as thinking, planning, questioning, ordering, problem solving, decision making and evaluation of the task/duty whilst physical resources are the necessary tools and equipment to perform the task. *Performing a task*, on the other hand, refers to completing a task using all physical and cognitive resources. At the end of this process, task/duty is completed and experience is gained. This experience is later accommodated and implemented to different situations and thus, the skill improves. The psychological and social condition of the individual is also important while performing a task/duty. Psychological and social cases could affect skill in a positive or negative direction (Bissonnette & Richard, 2001; Dionnet, 2002; OCDE, 2005).

These features related to skill are true for language skills. Tardif explains it with his "*Language skills is a collection of global knowledge and techniques*" statement (Tardif, 1997). Perrenoud, on the other hand, says "*Skill is the process of activating knowledge.*" As for Perrenoud, skill is activating all concepts, knowledge, methods, techniques, processes and special information known and putting them into practice. However, an individual's knowledge of some techniques and information does not mean s/he is competent. To develop the skill, it is necessary to make practice and to show how to transfer the knowledge into practice, how to organize and combine the knowledge; and how to activate and use cognitive and physical resources (Perrenoud, 1999; Perrenoud, 2004). As a result, skill is the activation of one's total cognitive resources, such as the concept, knowledge, methods, techniques and processes, and putting them into practice. In short, skill is the ability to transfer knowledge into practice to perform a task or duty.



## Characteristics

Skill has different characteristics. These are important in the process of developing the skill. Some of them are listed below (Bissonnette & Richard, 2001; Dionnet, 2002; Güneş, 2014; OECD, 2005).

***Skill is complex.*** Skill requires interrelated prior knowledge, practices, attitudes and techniques and all of these are integrated during practice. In educational studies, the complexity of the skill should be born in mind and all components of the skill should be taken into consideration.

***Skill can be developed.*** Skill can be developed for a lifetime. The activities to develop skill should be based on prior learning of students and should be acquired through activities. The skill levels changes depending on the level of education and age. Competencies should be continuously developed by using them in complex tasks and different situations.

***Skill is a ready power.*** Skill is not for the past but the future. The future is planned through the skill and possibilities are evaluated. The students will be alone in different learning environments in the future. They will continue learning on their own. In such cases, skill is a pre-existing power and ensures learning.

***Skill can be applied.*** Skill can be explained as managing a certain task or condition efficiently. It can be used in any case in changing a situation or adapting ourselves to a certain situation. Skill is not a certain and unchanging characteristic of someone. Skill is complex and performed in an applied way through managing different situations.

***Skill is a whole.*** It is not possible to talk about a part or half of a skill. For example, flying a plane involves taking off the plane, controlling it in the air and landing it. Skill cannot be developed partially and gradually but in a holistic and interconnected way.

***Skill is transferred.*** Skill is transferred to different situations to perform different tasks. It is important that students transfer their competencies to new situations and processes and thus, to always use these competencies. The assignments and tasks given to the students should not be a mere repetition of what is learned but an application of the skill in different situations.

***Skill is conscious.*** The skill is an efficient power. To use this, individuals have to be conscious. If an individual cannot guide his/her competencies depending on his/her objectives and needs, s/he will lose it in a very short time. Education should create a medium to prevent such conditions, to continuously develop students' competencies and make them use these competencies. In this process, students should be informed

about their skill and made to manage their competence (Bissonnette & Richard, 2001).

## **Competence Based Approach**

Until the 1950s, the behaviourist approach was adopted in education around the world. This approach concentrates on behaviours and teaching knowledge. In behaviourism, learning is the process of response to an external stimulus. Behaviours can permanently be changed in the context of stimulus-response-conditioning and reinforcement. Learning is defined by the observable behaviours of the individual. Students are passive in the classroom. Students are taught pre-set information and behaviours in the classroom. Such processes as lecturing and repeating are prioritized and behaviours are taught through repetition and conditioning. Positive behaviours are reinforced and thus, habits are formed (Güneş, 2014). Later in the 1980s, cognitivism came into agenda. In cognitivism, learning is viewed as changing the mental structure and it involved information processing. Also, teaching competencies were important.

Since the 1990s, a constructivist approach has been adopted. This approach defines learning as an active construction of knowledge in the mind. The constructivist approach claims that knowledge is not a process of acquisition. Students interact with their environment and thus, actively construct their own knowledge. In this process they acknowledge and adapt to the knowledge through assimilation and accommodation. The constructivist approach concentrates on teaching competencies (Institute National de Santé Publique du Québec, 2011). Individuals are expected to take action and perform a task by using all cognitive and external resources. In this approach, competencies are determined according to the ones planned to be improved in students through a student-centred approach. In this process, competencies necessary for daily life and professional life are prioritized. Therefore, various competencies are taught to the students at school to ensure that these competencies are transferred to daily life and professional life and thus, to be used for the good of all. The constructivist approach ends the passive listening role of the student in the classroom. Instead, they are replaced by active participation, curiosity, entrepreneurship, making their own decisions, reasoning, questioning, communicating, and applying what is learned in new conditions and lifelong learning skills.

In today's knowledge age, there is an accumulation of knowledge in all areas. Whilst it took hundreds of years for this accumulation in the past, today, every year, the knowledge accumulation doubles. In this process,

existing knowledge changes rapidly and is replaced by new knowledge. It is not possible to teach all that knowledge to the student. In order to live, work and adapt to the society in the 21<sup>st</sup> century, school years are not enough to equip students with all the knowledge. Studies are carried out to prevent this condition. These studies focus on: "Which competencies should be taught to educate the individuals of the future?" and "How these competencies should be chosen?" OECD carried out an extensive study on this issue. This study, which lasted six years with the participation from 44 countries, aimed to determine key competencies to be taught for future students. These competencies are grouped into four categories as cognitive, individual, social and mental independence competencies. Cognitive competencies are put to the centre of all competencies to be developed (OECD, 2005). Later, in 2006, the European Union determined eight key competencies under "Key Competencies for Lifelong Learning." Necessary for personal fulfilment, active citizenship, social inclusion and employment, are the following competencies: communication in mother tongue and in foreign languages, mathematical competence and basic competences in science and technology, learning to learn, social and civic competences, sense of initiative and entrepreneurship, cultural awareness and expression (European Union, 2007).

A skill-based approach does not only aim to teach competencies but also ensures the transfer of the competencies into practice. In this process, activating necessary physical and cognitive resources, and performing activities to tackle complex mental tasks are considered important. These practices contribute to increasing the impact of education, realizing the objectives of education faster and accommodating the competencies taught at school to professional and daily life skills. In other words, the purpose of a skill-based approach is to enable students to use the competencies they learn at school in tackling complex tasks and conditions outside the school (Perrenoud, 2004). Therefore, a skill-based approach is the centre of educational reforms in many countries.

There are many competencies individuals should have in daily life. These are grouped differently depending on such factors as field, level of education, sex, age, occupation, period and tools. Skill-based approach groups competencies that students are expected acquire under two categories. These are core competencies and specialty competencies.

***Cross-cutting competencies:*** These are competencies used to perform various tasks and duties and are transferred to different areas. Among these competencies are reasoning, researching, decision making, problem solving, communication, collaboration, learning to learn and developing and managing cognitive skills. These competencies, which are necessary

and requisite for everyday life, make learning at school easier and ensure lifelong learning (Perrenoud, 2004; Dionnet, 2002). These competencies are given as common competencies in curricula. These competencies are used in a wide range of areas in daily life, business life and school life. For instance, a student who develops reasoning skill can use it in science, mathematics, social studies and in daily life.

***Specific competencies:*** These are competencies unique to a certain field of study and related to a discipline. For instance, reading aloud and silently in Turkish, recognizing a word, using a dictionary, following grammar rules, writing a letter, performing addition and subtraction or other problem solving in mathematics, and finding a place on the map in social studies could be given as examples of such competencies (Perrenoud, 2004; Dionnet, 2002). Specialty competencies are gradually given in grade levels. Some of these competencies are also used in daily life (Güneş, 2014).

Cross-cutting competencies and specific competencies are considered in a holistic approach in curricula. Competencies in both groups are combined and gradually presented. Involving both competence groups and improving them together is considered important in educational activities (Legendre, 2001).

## Teaching Skill

The process of teaching skill is different from teaching knowledge. In teaching skill, first of all, information about the skill to be developed is given, and later, methods and techniques to develop that specific skill are taught. Teaching the methods and techniques is not a purpose or a result in itself but used as a tool to develop the skill (Tardif, 1997). It is necessary that students understand the methods and techniques well, construct them in their minds and develop competencies by applying them. In this process, students are guided and encouraged to apply the new competencies in different situations. It is also emphasized that the knowledge and techniques that students do not understand well will not improve competencies. The process of developing skill is a three-step process. These are preparation, applying knowledge and techniques and accommodating to different situations.

***Preparation for skill:*** At this step, students are informed about the skill and explanations of the purpose of skill and where it can be used are given.

***Applying knowledge and techniques:*** At this step, information and techniques about the skill are shown to the students with examples, and

they are taught how to do it. Following that, students are given activities in which they can apply these techniques. The application process of the student is monitored and necessary guidance and help is provided.

*Accommodating to different situations:* At this phase, the student has just learned the skill. It is necessary that s/he applies it to different situations and tries it in different activities. To this end, different activities are given to the student to accommodate what is learned in different situations and tasks, the convenient environment is prepared and the student is encouraged. Applying competencies is not an instant thing. Some students could easily transfer what they learned into application whilst others do it in time. At this point, it is suggested to move from known to unknown and to take certain things into account. These are (Bissonnette & Richard, 2001):

- Moving from students' existing knowledge and experiences,
- Encouraging students and making them believe in themselves to achieve that competence,
- Presenting a wide range of examples to students,
- Creating an awareness of the competence,
- Giving different activities and applying the skill in these activities,
- Telling the application process of the competence orally, sharing information about what kind of difficulties are experienced or what kind of solutions are found,
- Overviewing the process of application of the competence.

The given activities become important in the process of applying the competence. If there are no connections among the activities given to the students, it becomes difficult to put them into practice. Also, if different and various activities are not given, problems arise in putting the skill into practice. Giving a similar type of activities to the students is only a repetition of the same processes. These kinds of practices prevent reaching the target and developing the skill. So, these could be taken into consideration in the process of developing skill.

### **Differences between Teaching Skill and Knowledge**

Knowledge- based Teaching	Skill-based Teaching
<b>Curriculum</b>	
<ul style="list-style-type: none"> <li>• The course and course content are chosen depending on the area to be taught.</li> <li>• Knowledge related to the area is</li> </ul>	<ul style="list-style-type: none"> <li>• The course and course content are chosen depending on the competencies to be developed.</li> <li>• Daily life and professional skills are</li> </ul>

<p>considered as the main factor.</p> <ul style="list-style-type: none"> <li>• The focus is on the knowledge to be taught to the students and to teaching this knowledge.</li> </ul>	<p>considered as the main factors while choosing the content.</p> <ul style="list-style-type: none"> <li>• The focus is on clearly-set competencies to be developed.</li> </ul>
<b>Teacher</b>	
<p>Teacher is the expert of the content. Therefore, s/he concentrates on:</p> <ul style="list-style-type: none"> <li>• Teaching the whole content,</li> <li>• Making a step-by-step plan to teach the content,</li> <li>• Organizing the educational environment,</li> <li>• Evaluating the knowledge.</li> </ul>	<p>Teacher is a facilitator for learning. Therefore, s/he concentrates on:</p> <ul style="list-style-type: none"> <li>• The learning processes,</li> <li>• Planning the content depending on the skill to be developed,</li> <li>• Organizing an environment that facilitates learning,</li> <li>• Evaluating the development of the skill.</li> </ul>
<b>Student</b>	
<ul style="list-style-type: none"> <li>• Students' prior learning and experiences are not taken into consideration.</li> <li>• Students are mostly passive and only listeners.</li> <li>• Students' learning depends on the teacher.</li> </ul>	<ul style="list-style-type: none"> <li>• Students' prior learning and experiences are effective in learning.</li> <li>• Students are mostly active in the learning process.</li> <li>• Students are responsible for their learning.</li> </ul>
<b>Evaluation</b>	
<ul style="list-style-type: none"> <li>• Evaluation centring on learning knowledge is made.</li> <li>• Formative assessment is rarely used.</li> <li>• Evaluation is made at the end of learning and a classification is made.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation centring on determining the development level of the skill is made.</li> <li>• Formative assessment is often used to see the development level of the skill.</li> <li>• Evaluation is an important part of learning.</li> </ul>
<b>Learning</b>	
<ul style="list-style-type: none"> <li>• Learning knowledge is a priority to develop skills.</li> <li>• Learning knowledge occurs part by part.</li> <li>• Learning happens from simple to complex.</li> <li>• Knowledge is given out of its context. Therefore, it is mostly meaningless for the student.</li> <li>• Student may know a topic well in the examination. However, this does not guarantee that s/he can use that knowledge to solve a</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge is constructed in the mind to develop competencies.</li> <li>• Skill is learned as a whole not in parts.</li> <li>• Student is at the centre of instruction and the skill is demonstrated by practicing it. At first, simple competencies are taught.</li> <li>• Knowledge is related to competence and as the knowledge is practiced, skill develops and this makes learning meaningful for the student.</li> <li>• Skill is seen as a system. It is not independent from existing knowledge</li> </ul>

<p>problem or make a decision.</p> <ul style="list-style-type: none"> <li>• Putting what is learned into practice occurs in later years.</li> <li>• Skill is considered to be related to students and learning a skill depends on practicing the skill in different environments.</li> <li>• Knowledge is not connected; it is learned by memorizing. After the instruction, simple exercises to remind the taught knowledge are given.</li> </ul>	<p>but based on knowledge and is activated with this knowledge.</p> <ul style="list-style-type: none"> <li>• Transferring what is learned into practice starts in the classroom.</li> <li>• Learning a skill develops in different conditions and after a set of practices.</li> <li>• Students are placed in the right environment to develop competencies. There, the competence is shown, and it develops by practicing the given knowledge (Güneş, 2012; Tardif, 1997).</li> </ul>
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## Skill Levels

In a skill-based approach, competences develop gradually. For instance, the language skills start with reading and writing a simple sentence and grow to high-order skills. To determine such a wide area of competencies, various levels are formed. Competencies necessary in each level are different. When these levels are shown on a straight line, they are ordered as basic, intermediate and advanced competencies. The content of the competence levels for language skills are as given below:

**Basic competencies:** Basic language competencies form the first step of the language learning process. The skills at this level start with learning primary reading and writing and go until reading and writing simple texts. Students' reading, writing, listening and speaking skills are supported with different studies and activities, along with interesting and high-quality educational materials, and thus, progress is ensured. With these studies, students reach fluent reading, writing and speaking levels. These skills are mostly given at primary school.

**Intermediate competencies:** This is the level where listening, speaking, reading and writing skills are actively used in individual, social and cultural areas. At this level, the focus is on the utilization of the basic competencies in daily life. These competencies are mostly given at secondary school and high school.

**Advanced competencies:** This is the level that enables the use of listening, speaking, reading and writing skills in individual, social and cultural areas and which ensures that the capacity of the individual is developed to the full extent. At this level, language skills involve such characteristics as developing the self-realization of the individual, developing his/her creativity, having different values, researching complex issues, having a scientific point of view, being objective and having a wider

world perspective. This level is seen as a key to all knowledge necessary for social, political and economic life (Güneş, 2007). These skills are mostly given at the higher education level. Advanced competencies are grouped under undergraduate and graduate competencies.

## **Evaluating Competencies**

Assessment and evaluation in skill-based teaching is different. In knowledge-based teaching programs, instead of learning, students only memorize the information just to have good marks on the exams; they answer the exam questions and forget them in time. In a skill evaluation system, on the other hand, marks are used to guide students better and to find out their deficiencies. This practice helps to develop student interest and motivation for learning. Therefore, a different evaluation model is used in skill-based teaching (Saraç, 2017).

In skill-based teaching, evaluation is not only for determining the mistakes and deficiencies but also involves identifying the positive things. The aim is to determine students' strengths, on the one hand, and to determine the problems related to learning through convenient educational assessments and thus, to solve these problems, on the other hand. In evaluating competencies, students' development is taken into account. There are two kinds of evaluation: formative and summative. In formative evaluation, students' learning styles and progress are monitored and the necessary guidance and help is provided to reach the outcomes. In summative evaluation, on the other hand, whether or not the student is equipped with the required skills for the next step is determined.

Skill evaluation is used in various international research; the leading one being the research carried out by OECD. OECD has been offering the most important and usable statistical resources in economic and social areas for the last 40 years. With this understanding, PIRLS is conducted among primary school 4<sup>th</sup> grade students, and PISA is conducted among secondary school students. The PISA assessment tests students' mathematics, science and reading literacy skills. For instance, 510 thousand students representing 28 million 15-year-old students from 65 countries participated in PISA 2012. PIAAC, a similar version of PISA for adults, measures adults' reading and comprehension skills. With the AHELO assessment, OECD carries out its experience in higher education because there is not adequate data on learning and developing competencies in higher education at the international level.

Studies to evaluate competencies in higher education are essential in terms of preventing skill incompatibility and finding jobs. To this end,



OECD started studies to evaluate universities' and university students' performance at the international level. The objectives of AHELO (Assessment of Higher Education Learning Outcomes) are:

- Evaluate, improve and increase the quality of university education,
- Give students' the opportunity to make the best university choice,
- Give administrators feedback about university expenses and productivity,
- Provide information to businesses on whether the people they employed match their needs,
- Inform students about the diploma competencies they will have.

Critical thinking, analytical thinking, problem solving and written communication skills of all higher education students participating in AHELO assessment are evaluated. In addition, discipline-specific competencies of the students in economics and engineering are evaluated.

### **Skill Mismatch**

An important dimension of skill-based teaching and evaluation studies is the prevention of skill mismatch. Skill inadequacy is explained as *“mismatch of the knowledge and skills required in a profession with the ones a person has.”* To find out the skill mismatch, the duration and content of the education that an individual took as well as his/her skills are compared to the ones required in the profession s/he does. If these competencies match, that ensures that the individual is successful and productive, but otherwise, it causes individual, social and economic problems. In some cases, people might have more and higher skills than what the job requires whilst in others they could have fewer and lower skills. Sometimes, the competencies are out-of-date and the individual cannot find the environment to practice them. Research shows that skill mismatch is more often seen at higher education levels and affects most of the graduates. The reason behind this is the fact that the education given to the students in higher education is mostly knowledge-based, and this does not help to equip them with the professional competencies they need in professional life (CEDEFOP, 2010).

When the reasons for skill mismatch are examined, the first thing that is faced is the problem in education. Curricula, as a problem in education, are on the top of the list as a problem. When preparing a curriculum, it is important that it matches the knowledge and skills of the professions it addresses. A curriculum enriched with competencies helps students to acquaint themselves with various skills and to develop these skills. In

addition, the ratio of theory and practice courses in the curriculum is important. In curricula, in which theoretical classes are prioritized and have higher rates in the curriculum, and thus, practical courses are ignored, skill mismatch is inevitable. Additionally, the relationships between the courses, subjects and competencies in the curriculum should be established well. Skill mismatch occurs when a progressive and complementary logical connection cannot be established between the courses. To prevent this, the curricula that involve the objectives, approach, competencies, teaching and learning process and evaluation should be continuously updated. In particular, the higher education curricula should be matching the competencies of the professions in terms of skills, courses and approach.

Skill mismatch directly affects an individual's professional life and brings satisfaction and quality of work down. This, in turn, nurtures unemployment and crisis. It also slows down the development in such areas as education, health, agriculture and economy. Research indicates that skill mismatch causes a \$150 billion loss in the world's economy annually. Developed countries keep researching and looking for solutions to this issue. It is emphasized that societies that do not equip their students with the necessary skills required in their professions during the education they offer will have problems with economic, social, cultural and technological developments and will not be able to have a place in this knowledge age. It is indicated that if this issue of skill mismatch is not solved, the number of graduate unemployed people will increase and companies will have difficulties in finding a qualified workforce (Güneş & Uygun, 2016).

Addressing skill mismatch is more essential in teacher education program. This mismatch causes not only a fall in the quality of education but also leads to inadequate education of the future generations. Therefore, there should be complementary logical relations between the competencies and courses offered at all levels from pre-school education until higher education. Competencies should be compatible among themselves and students should be equipped with practical knowledge, skills and viewpoints that the teaching profession requires. Otherwise, skill mismatch occurs, and teachers cannot contribute to the students. This is seen in such basic skills as reading and writing, and most students are not able to develop basic skills such as reading, writing, comprehension and mathematics and cannot reach the desired level in those skills. Those students who cannot develop their language skills also have cognitive, social and emotional problems. As a result, the number of unseen illiterate people with a diploma increases in society. Various suggestions are put

forward to prevent skill mismatch. These are given as four items below (Güneş & Uygun, 2016).

1. To prevent skill mismatch, the curricula that involves the objectives, approach, competencies, teaching and learning process and evaluation should be continuously updated. The rate of mismatch between the competencies of the graduates from this type of curriculum and the competencies required in the profession is lower.
2. A second view to prevent skill mismatch is about improving the quality of education. Universities concentrate more on knowledge-based education and students graduate without being equipped with the necessary competencies their profession require. Thus, the graduates do not meet the demands and expectations of the business world. To prevent this, skill-based teaching should be concentrated on. The type, level and matching of the skills students will be taught should be taken into account.
3. A third view supports that the development of the competencies should be checked at all educational levels in primary school, secondary school, high school and in higher education. Students should be equipped with the necessary skills at all levels. A lack of skill should not be allowed to be carried up to the next level.
4. A fourth view on preventing skill mismatch supports that lifelong learning should be focused on to offer a contemporary education. Lifelong learning, which aims to equip and revise the necessary knowledge and skills of the individuals from cradle to grave, is an effective tool in reducing skill mismatch.

## Conclusion

Education involves two main processes: change and development. Education necessitates change, and change necessitates development. Therefore, changing the knowledge, skills, behaviours and attitudes of the individuals is expected in the process of education. This view changes depending on the educational approach adopted. The traditional approach emphasizes a change in “knowledge” whilst behaviourists expect a change in “behaviour;” cognitivists expect a change in “cognitive schemas” and constructivists expect a change in “competencies.” Individuals are expected to have permanent changes and developments as a result of education. However, impermanent changes occur after each educational activity. Education carried out through transfer of knowledge, memorization and repetition does not provide the desired results. Students’

language and cognitive skills do not develop sufficiently. Therefore, the constructivist approach focuses on education to develop cognitive process and competencies.

Skill is considered compulsory for individuals in their daily life to improve their capacity, to integrate with the society and to succeed in business life. In addition, it is essential to develop the existing competencies of an individual and to add new ones in terms of ensuring adaptation to the rapid changes and development in the world, innovation, production and productivity. Having rich competencies increase the motivation and satisfaction of an individual and ensures that s/he is successful in daily life and business life. Thus, s/he plays an active role in the society and contributes to the development of his/her country. To ensure and sustain these developments, competencies should be focused on in education.

As in many European countries, Turkey implements skill-based teaching. In the primary and secondary school curricula implemented in Turkey since 2005, cross-cutting competencies and specific competencies are set. Cross-cutting competencies are listed as using Turkish correctly and effectively, critical thinking, creative thinking, communication, problem solving, researching, using information technologies, entrepreneurship, decision making, and attaching importance to individual and social values (MEB, 2005). Specific competencies, on the other hand, are listed as learning outcomes based on the specific fields such as Turkish, science and mathematics. In studies carried out under “Bologna process” in the universities, a skill-based approach is adopted.

When the studies both in Turkey and around the world are examined, it is seen that there are some problems. It seems that most curricula from primary school to higher education are knowledge-based, that they do not sufficiently include competencies, and the method, technique and evaluation comprehension are out-of-date. It is seen that knowledge is concentrated on in the classes and examinations, and students are not equipped with necessary competencies. This is also clearly seen in the results from such assessments as OECD’s PISA, PIRLS, PIAAC and AHELO. To ensure that education reaches its purpose, to increase students’ achievement and to save time, effort and cost, skill-based teaching should be used. Students’ language, and cognitive and social competencies should be developed at an advanced level and thus, individuals steering the future should be increased.

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