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Dear IEJEE readers,

IEJEE presents four articles in this number. Kristína Žoldošová and Iveta Matejovičová from *Trnava University, Slovakia* adress the issues of objectively evaluation of development of skills by elementary school children in science education. They discuss and present sound ideas about development and evaluation of basic science process skills, causal thinking and empirical thinking,

Child's right to education is an universal important topic. Glenda Jackson, *Monash University, Australia* and Sonia Allan from *University of Adelaide. Australia* take up a the fundamental elements in examining a child's right to education. They present an informative paper about several aspects of home education.

'Out of school education' will be the main theme of the next special issue of IEJEE.

Jackson and Allan's paper gives us the scientific, social and legislative frames surrounding the home education in Australia. Their paper is a valuable contribution to the field, particularly for those researchers who are interested in highligting the *home education-movement* from a comparative and international perspective.

Gökhan Baş and Ömer Beyhan from *Selcuk University, Konya, Turkey* investigated in an experimental studied the impact of *multiple intelligences supported project-based teaching* method and *traditional foreign language-teaching* environment on 5th graders' achievement and their attitude towards the English as a foreign language subject. Their experimental research has shown that children taught in English through *multiple intelligences supported project-based teaching* outperformed the students who were taught in a *traditional foreign language-teaching environment* with regard to the development of English language skills, attitudes towards teaching and motivation to English teaching.

Eyyup Coşkun and Murat Alkan of *Mustafa Kemal University, Hatay, Turkey* conducted a small-scaled study on the impact of the Turkish national curriculum reform of 2005 on teaching-learning processes in the classroom. According the offical Turkish national curriculum document the teaching-learning processes must be based on a constructivistic and child-centered educational perspectives. The study revealed that despite the teachers' lack of loyalty to the official curricular prescriptions, their teaching practices are child-centered and the students considered central elements of the national curriculum as positive.

As the reader may see, Coşkun and Alkan address important issues related to the discrepancy between the formal, practiced and experienced curriculum. The gaps between different curriculum levels are educationally challenging and need to be addressed more broadly and in a way that can give the practioners and the policy makers informative feedback.

Prof. Dr. Kamil Özerk
Editor-In-Chief

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Finding out how the elementary school children manipulate with empirical material and how they process the obtained information

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Abstract
The article is aimed at a partial problem of science process skills development – the evaluation of educational outcomes. In comparison to evaluation of obtained knowledge, the skills development is not so easy to be objectively evaluated. The article provides a proposal of an evaluation tool and describes the first results of its research utilization. The described research tool is applicable especially when we would like to consider whether using of inquiry based science education at primary level has a required impact on pupils' science process skills or not.

Keywords: basic science process skills, causal thinking, empirical thinking, primary science education

Introduction

Until recently, most of researches in area of children's science preconceptions have been posed into descriptive methodological frame. The main idea was an understanding difference between preconception and the mature concept (Piaget, 1929). We have found out much information about how the preconceptions look like in different aged children and different topics of interest (e.g. young children preconceptions or alternative

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conceptions about prenatal development and human body in general, or animals: Bernstein & Cowan, 1965; Kreitler & Kreitler, 1966; Nagy, 1953; Prokop, Kubiatko & Fančovičová, 2007; Prokop, Prokop & Tunnicliffe, 2008; Žoldošová & Prokop, 2007). If we are able to move in the research activities from the mentioned descriptive to a procedural position, we could probably register a movement in understanding of the childreǹ s spontaneous learning and it will allow us to apply gathered findings and results into innovations of primary science education. For example, the gathered findings (from the descriptive researches about childreǹ s naive conceptions) allow us to consider whether the systematic education does or does not have a noticeable influence on desired science conceptions development. On the other hand the same findings are not giving us information about how the educational environment (within its methods, conceptions, used tools, etc.) needs to be changed to get more accurate results. On the contrary, if we are able to get information about the cognitive process the children use while they are operating the registered information, we should get relevant information which allows us to consider whether actually used educational methods are suitable or not. It means that we should try to move from description of preconceptions to investigation of how the children manipulate with information, especially in a form of empirical data processing. The same tendency of desisting from the educational content and approaching to educational process is noticeable not only in the research area (see researches aimed at science process skills: Beaumont-Walters & Soyibo, 2001; So, 2003; Bilgin, 2006; Etkina, 2007; Lawson, 2004; Mattheis & Nakayama, 1988; Monhard & Monhard, 2006 and others), but also in the primary science education process itself (Eshach, 2006). In to the bargain the mentioned tendency is tied with all-European interest for the science revival (Rocard et al, 2007). The main target of primary science education is aimed at development of cognitive skills which allow pupils to work with information of different kind and build up broadly effective knowledge system which is not only open for changes, but we can say that it almost awaits changes. Teachers´ effort to find suitable evaluative tools in area of cognitive skills development is a really natural consequential process. Teachers should be offered something effective and verified.

These are only very briefly designed main reasons why we have decided to concentrate not on the content of the preconceptions but on the process of its modification. This article tries to make the mentioned tendency visible and also to design prospective research methodology (including the research tools) that can make clear at least one way of approaching to this kind of the research purpose. And the last but not least, the article tries to show the teachers the principle of science education skills development.

Developing science process skills at primary level

Primary level children constantly create and modify their conceptions about surrounding reality. In these operations with empirical information it is

quite inevitable to use science process skills. Science process skills are one of the most relevant tools of making and arranging information about world around us. Children use these skills to obtain new information and process them. If the skills are applied adequately we can acquire information effectively and create an information system open for changes. This shows that it is possible to influence children's preconceptions via effective and systematic development of science process skills. A child starts to perceive the ordinary reality more scientific way meaning that the child starts to be unsatisfied with descriptive information about reality and he/she very naturally starts to search for causalities and principles of the observed phenomena (and this is one of main goals of science education).

The theory of science process skills development is very complex. Practically we should speak about one complex skill which includes many partial skills. Some of them are more common and some of them are very specific; nevertheless they are always used together. That is why we can deal with particular skills only in a theoretic level. Practically they are closely connected with other parts of scientific literacy (science preconceptions, science attitudes, etc.) and it is impossible to separate them. If the teacher would like pupils to manipulate with their preconceptions he/she not only needs to know the pupils' preconception (Akerson, Flick & Lederman, 2000) but it leads to use pupils' science process skills. We cannot develop an individual skill separately. A child cannot solve the task while using just one particular skill. He or she needs to use the whole complex of skills to solve it successfully.

We (and also the children) possess numerous skills, but we use them only spontaneously and subconsciously. It means that the skills are developed in a very slow and ineffective way. Via directed development we can assign more targeted utilization of the skills and this can lead to getting more objective information and to more objective way of working with the information and get new, really disposable knowledge.

Science process skills are significant for meaningful learning as well; it involves linking new experiences to previous ones and extending ideas and concepts to include a progressively wider range of related phenomena. If these skills are not developed sufficiently, pupils cannot interpret knowledge, for example, relevant evidence is not collected, or conclusions are based selectively on those findings confirming initial preconceptions and ignore contrary evidence, then the emerging concepts will not help understanding the world around. Thus the development of scientific process skills has to be the major goal of science education (Harlen, 1999).

Science process skills can be defined as a utilization of methods and procedures of scientific investigative thinking (Bilgin, 2006). Padilla (1990) defines science process skills as a set of skills that reflect scientists' behavior. According to Hollins and Whitby (1998) science process skills are understood as a combination of skills and procedures practiced and used in

scientific investigations. We can say that science process skills lead us to thinking in a specific way common for investigative thinking.

Science process skills are divided into two categories according to sophistication of its utilization: basic science process skills (BSPS) and the integrated science process skills (ISPS). There are five science process skills integrated into the category of basic science process skills; even though the exact separation is not possible and is done only in theoretical meaning: *observing, inferring, predicting, classifying, measuring and using space and time relationships***.** Similarly we can recognize nine integrated science process skills: *identifying and defining variables, collecting and transforming data, constructing tables of data and graphs, describing relationships between variables, interpreting data, manipulating materials, formulating hypotheses, designing investigations, drawing conclusions and generalizing* (Colvill & Pattie, 2002; Beaumont-Walters & Soyibo, 2001).

The basic science process skills are prerequisites for development of the integrated ones. The BSPS are used for arrangement and description of natural objects and events. They are attributed to empirical-inductive reasoning or Piagetian concrete operational reasoning. The ISPS are the terminal skills for problem solving, arranging and operating scientific experiments. These abilities are attributed to hypothetic-deductive reasoning or Piaget's formal operational reasoning.

While the skills are developed we should be respectful of children's cognitive level. We should support only the skills with real possibility to be developed. During pre-school and primary education we should pay attention to development of basic science process skills (it mainly means starting with empirical investigation based on observational activities with descriptive result and then proceeding to search for questions and deal with searching for empirical answers). After that we can consecutively start with development of integrated science process skills (it mainly means to set a hypothesis and to search for experimental way of testing it).

The ways of developing the skills are described in many publications (the most of them are dealing with Inquiry Based Science Education). Even though it is a very important topic, at this stage we would like to concentrate on a specific problem which flows out of an implementation of this educational attitude – evaluative process of progress in science process skills development. For this reason we have designed a research tool which tries to measure science process skills and uncover potential problems with usage of the skills. The evaluative tool is based on observation of how pupils manipulate with reality and how they deal with answers on different kind of questions (empirically based, causal and applicative ones).

Before we approach to the research tool clarification we will try to explain the way we should lead the pupils in their investigations to be better developed in science process skills. The below described activity is an active part of the research tool.

Example of an activity aimed at developing the science process skills (research methodology frame)

For example, we set these problems for solving: What is the shadow? How is the shadow made? The required investigation is aimed at changing the shadow depending on the light source and the way the light flows. All the pupils (divided into 4-5 member groups) will get the same instruction (level 0): Stand the nail on its head in the middle of the sheet of paper. Take a torch and light up the nail in some angle from distance of few centimeters. Mark the length of the shadow the nail has created on the paper. Try to observe more the way the length of the shadow changes depending on the changing way of a light exposed. Pupils should get as much time for the empirical investigation as they need. At the end the pupils are asked to formulate their findings. The pupils are verbalizing what they perceive as the most important information and what they perceive as a result. Verbalization of the results is very important. It is as important as the sharing of the results with other schoolmates.

In order to initiate pupils' further investigation, the teacher asks different questions (the formulation of the questions below has been inspired by researches of light and shadow preconceptions at preschool and primary age: Chen, 2008; Fleer, 1996; Driver, 2002). The main target is to clarify the conception and the additional target is to provide with children a thinking pattern. Theoretically we can divide the question into 3 groups, or better said levels, because by posing the questions we are forcing the pupils to use different cognitive skills. The first level is aimed at pupils' empirical investigation. It is possible to answer all questions only on the basis of empirical data the pupils have gotten. We can find out, whether the pupils are able to observe the phenomenon and whether they are able to notice the principles or the basic aspects of the observed situation.

1st Level

How would you make the shadow longer or shorter? How is it possible to make a shadow with direction to the right or left? Think about how you have to move the source of light in order to turn the shadow to the wished direction. Try to describe the findings. Does the shadow length depend on the angle the torch is shining on the nail? If you wish to make the shadow shorter, what do you need to do with the light? What do you have to do with the light (or with the nail) if you would like to make the shadow longer? Does the shadow length depend on the distance between the nail and the light source (the torch)? Are all shadows equally dark?

The second level is aimed at guiding the pupils to recognize causal relations. The questions are aimed at recognition of different relations in the stimulating situation. It is interesting to notice, whether the pupils are answering the questions without further investigation or they have tendency to search for the answers in the empirical

manipulation. The second valuable thing we should notice is whether the pupils just guess the answers without arguments or they try to pose more valuable prediction or the most valuable hypotheses.

2nd Level

Give the torch to your schoolmate. The schoolmate will take the switched-off torch and point with it on the nail in some random angle and distance. Try to draw on the paper under the nail the direction of the shadow the light will make after the torch is switched on. Try to explain your prediction. Switch the light on and verify your prediction. Would it be possible for you to make successful predictions also about the length of the shadow? Why is the shadow of the same nail sometimes longer than other times? How does the length of the shadow depend on the angle between the nail and the light source (the torch)? Try to explain why you think this way (try to draw a scheme in which you demonstrate how the light travels from the torch to the nail and the paper under the nail). Describe how you should light on the nail with the torch in order not to make any shadow and explain why the shadow does not create.

The third level is aimed at pupil's ability to apply knowledge – it means that the questions are forcing the pupils to recognize principal matter and to create a transfer to a different situation with the same principal matter. Eventually the questions are asking the pupils to explain the observed phenomenon through different situation mediation.

3rd Level

Cover one of your eyes with a palm of your hand and observe the nail with the second eye. Try to observe it from overview. Try to draw as you can see it. Then try to look at the nail the same way but sidelong and draw the nail again – how you see (perceive) it now. Be sure you keep also the disproportions of the nail. The third drawing will be made from slantwise view. Compare the drawings and try to find differences and represent them. How does the shape of the nail change when you try to look at the nail from different points of view? Try to generalize your findings. What is the shadow? What is the similarity of the shadow and the darkness? Where are the shadows made? Where you cannot find any shadows? How are the shadows made in a room with few light sources? Is it possible to make more than one shadow of one object? Try to explain where, how and what you need to make them.

A shadow is a reality we have so much experience with. But because this and also because of the conception difficulty we usually think how much we understand it, but when somebody asks us to define or explain it we find out it too difficult and whole idea about shadows immediately seems so vague. It

is quite easy to explain what the shadow is, but only in case we have already understood the rules, laws and principles of light travelling. Finally the understanding depends on how we understand the conception of light (mainly the differences between properties of light and properties of matter).

The conception is continuously modified while we are unconsciously using similarities of the analyzed reality with the previous experience. For example, very typical is a spontaneous application of a conception about flowing matters consisting of small particles – like sand or water. It is very important to realize that usage of these ideas is very spontaneous, that is why we usually do not realize that we are comparing reality with something we already know. Only in case when we are led to use examples or we are led to explain how we perceive the phenomena we can start to recognize what kind of generalized idea we are using. In this case we can also enrich or modify both ideas – the already existing and the newly created one.

If we are trying to verbalize our idea about the phenomena explanation, or much better, if we are trying to schematically draw the situation, the concrete reality and the manipulation with it will help us less than abstract manipulation. If the new knowledge (idea) has been created via abstract manipulation, we need to verify it and usually we are approaching back to empirical investigation. We need the reality to prove the functionality of its explanation concerning the reality. For example, we can create an idea that light behaves like flowing particles of sand. Some particles hit the obstacle (nail) and are driven back or driven in different angles; some of them change their flow direction minimally. None of the particles can get closely behind the nail. If we use this analogy, we can explain shadow existence as an absence of light. If the conception was build up this way, also usage of concept *shadow* can be enriched. For example, we can use the *shadow* as a concept that tries to explain function of safety shield. In cases of different angles of arrival the safety shield can provide a *shadow* of different sizes.

Abstract manipulation with conceptions provides possibility for clarification of those concepts we have used for the explanation. Very important aspect of this process is hidden in enriching the possibilities of applying the idea on different kind of realities – the concepts become more general. For instance, we can take an idea about matter particles movement. The idea can be created via observation of some matter hitting different kind of obstacles (sand or water on an umbrella or on a roof). This idea can be transferred from this phenomenon to different ones with similar basic attributes – the presence of some matter before an obstacle and absence of the matter behind the obstacle.

Even though the whole activity is aimed at clarifying the idea of a shadow (whereby also the idea of light is enriched); we do not need to perceive this goal like a decisive one. With a good guidance the pupils can

develop their observational abilities, abilities of generalization, or ability to construct a test of a prediction or hypothesis.

At the aforesaid first level of the conceptions clarification we can aim the activity at development of observational ability. Children are observing well known phenomenon and it is very interesting to verify a validity of the ideas the children already have. For example, they can realize and express the empirical generalization that the shadow has the same shape as the object before the shadow. The tendency to generalize the empirical data is naive and spontaneous. If we would like to develop new abilities we should ask more questions. For instance we can ask the pupils to explain, why the shadow has the same shape as the object does. Pupils on the first level with emphasis to empirical searching usually have a problem with answering this kind of question. Either they do not understand why the shapes are the same, or they understand but the verbalization of the idea is too difficult for them (nobody has ever asked them to express something they learn via experience). If we are forcing the pupils to verbalize their ideas, we are also forcing them to analyze the observed attributes and to clarify the observed details. Simply said, the child is driven to create causal knowledge via factual knowledge through the use of cognitive manipulation which is developed just with this process.

If we would like to develop mainly the observational abilities (1st level; preschool age), we should focus pupils attention at the connection between some observed changes on the phenomenon and the intervention they did. Realizing the logical connection between the result of the changes and the way how and what they have intervened is a meaningful first step to development of causal thinking. For example, if the child moves the light source to the right, the shadow will move to the left. Even though the child can predict this also without doing that only on a basis of previous experience, if we tend to force the child to express the prediction before the realization and express the result after the realization as a verification of the prediction, the spontaneous assuming can become more intentional and conscious. These are suitable circumstances for cognitive development – to change spontaneous cognitive operation to intentional ones.

Realizing the connection between the phenomena changes and the interventions is transformed into different situations. In this case the child can much better understand everyday's situations and in context of this the child can get much more material (information) needed for further creation and modification of more developed ideas.

The first level of the concept clarification is very important, because the children can develop their ability of generalization. The ability of generalization means that the children can create summary principle of phenomena (or attributes of one phenomenon) which are in some kind of connection. For example, the child can make a generalization about relation between angle size and shadow length (larger the angle, smaller the

shadow). Even though the generalization is very spontaneous, verbalized version can contribute to cognitive development.

There is a very narrow connection between this ability and ability to select exceptions and on the other side to include relevant, even though not very expressive attributes or details. For example, in this activity the children very often make a generalization that the length of the shadow depends also on distance between a light source and an object (nail). The incorrect generalization is made mainly because the shadow starts to be not so expressive (very faded) when we prolong the distance between the light source and the object. Simply, the children incorrectly mark the end of the shadow. Furthermore, it is quite difficult to hold the torch in the same direction (angle) and change only the distance without any helping tools (stand and so on). These measurement errors, exceptions and empirical details are more difficult to be objectively evaluated. The incorrect generalization can be tested, but for pupils in the first level it is very difficult to create suitable tests.

It is evident that we should offer the preschool children mainly that kind of situations where they cannot be lost in data and do not move out of the preconceptions. On the other side, if the children cannot experience also situation with polemical generalization, very soon they can start to perceive the experimental results as absolutely valid. This is neither a good educational nor the scientific target.

In the second level of concept clarification we are aimed at development of causal thinking and causal knowledge (primary level of school education). This level stands at the beginning of abstract thinking. At the first phase we are aimed at experience systematization and comparison of their essential attributes.

After asking few questions children start to search in previous experience for similar phenomena. They are trying to search for such experience which is reminded by the actually experienced situation (for example – few shadows of the same object on the football stadium or under streetlights). It is useful if we are trying to analyze all these experience concerning the inquired situation, because the experience is an excellent material for verifying the validity of actually constructed predictions or newly constructed conceptions about how the situation works. For example, if we create a prediction that more shadows of one object can be present in a room where more than one light source is placed; the proposition can be supported by experience with evening walk under streetlights. While one shadow disappears the second becomes darker. It is very important to have enough experience with different phenomena (that is why the first level in preschool age is so important) if we want the children not only to construct the prediction, but also to accept it. The acceptation of the result happens only when the new construction is compatible with previous experience. The experience is empirical in its principles and that

means that experience is as much objective as the empiricism is. For comparison, abstractly constructed hypotheses (explanations, ideas ...) loose the objectivity.

The third level (represented by secondary education) is aimed at application of the modified knowledge. In the second level the pupils are led to argue about their ideas and constructions and this way the constructions (knowledge, ideas) get their stability. The third level is aimed at application of these constructions on different situations. More important meaning of this level lies on a solutions design. Practically it means that if the child makes a hypothesis about how the light flows around objects, he or she will be able to use this idea when he/she is trying to design a definition of "shadow". This level is principally about awareness and utilization of the basic principles of the main concept (how the light travels). For example, if the child realizes that the shadow making relates to directness of light flow, he or she will be able to draw an explanatory scheme about how the light hits the nail from different directions (different light sources). Than we can read out of the scheme (drawn or only cognitively constructed in mind) that theoretically the length of the shadow cannot depend on the distance between the object and the light source. This finding is a good starting point for re-evaluation previous generalization and the child can consider whether the first prediction was caused by measurement error or it was correctly measured and evaluated result. This way the child's ability for sensitive reaction to some findings can be improved.

Methodology

The target of the research is the construction of suitable research tool (tool ought to be as simple as possible and at the same time ought to offer objective evaluation) that is able to identify a level of science process skills development. The research tool is going to diagnose those cognitive skills which are used in a process of practical modification of the pupils' preconceptions. It is quite evident that the way the pupils manipulate with the empirically obtained information can be investigated only indirectly, using qualitative research methodology. The core of the research tool is based on structured observation of pupil's empirical activity and supported by semi-structured interview (in Paget's conception). We have used the situation, which leads the pupil to investigate chosen phenomena described in the previous paragraph of this article. We have chosen phenomena the pupils have a lot of experience with and in spite of that they have never intentionally investigated it (shadow, mirror reflection). While the pupil investigates the phenomenon, the researcher asks the pupil questions which lead the child to search for more information and to think about what she/he is actually investigating. The questions are divided into 4 levels depending on its difficulty within the context of cognitive skills the pupils have to use in order to construct an answer.

Research investigation starts with stimulating situation (0) constructed for the pupil to reinitiate his/her process of thinking about the phenomena. The pupil manipulates with the light source and the object to observe the shadow. The researcher asks the pupil questions. There are 3 levels of question difficulty. The questions of the first level (1) are aimed at description of the observed phenomena. The questions of the second level (2) are aimed at searching for causality and explaining the functioning and the third level (3) is aimed at constructing principles and applying the principles on different situations based on the same principles.

Tasks are divided into four different levels. Each group of questions is aimed at identification of specific skills. The items of level 0 and 1 are specially oriented to trace the basic science process skills (BSPS) which gradually approach to the integrated science process skills (ISPS) in the 2nd and 3rd level. Of course, we cannot say that pupil uses just one skill to solve one task. Therefore we concentrated on that skill (sometimes two skills) which is used in a concrete task the most.

If the pupils are able to answer all questions of the first level we can predict that the pupils are able to specifically and intentionally observe the phenomena and that their observation has been detailed. In addition we can consider, whether the pupil is or is not able to select the principle aspect of the phenomena and on its basis to verbalize suitable results of detailed observation.

If the pupils are able to answer all questions of the first and second level we can predict that the pupils are able (and also have a tendency) to explain observed reality, to link causal information and to create objective and generalized information.

If the pupils are able to answer all questions of the first, the second and the third level we can predict that the pupils are able to match new information with previously generalized information, they are able to create meaningful statements which can provide suitable explanation in a theoretical (abstract) form. Finally they are able to recognize actually generalized theoretical principle in different situations (for example in previously experienced situations).

All the research meetings with the pupils had been recorded and further analyzed on the basis of defined categories (see Appendix). The categories have been constructed following the pupils partial observable abilities (skills). After ranging the observed skills the chart of the categories provides results which represent a measure of the pupil's science process skills. The partial categories have been ranked following quality of the pupil's answers together with quality of pupil's manipulation with reality while she/he was searching for the suitable answer. That is why the researcher needs to pay attention not only to the simple answer to posed

question, but in parallel also to how the pupil handles the reality, while he/she creates the answer.

It is important to be aware that the research is not aimed at finding out whether the pupils get a correct knowledge or not. It is aimed at how the pupils manipulate with empirical information. If any of the skills (included in twelve categories C1 – C12) is not identified, we should assign 0 points for the relevant category. If the skill is identified, we should express a level of the skill quality in the range (for example in the category C1 we can identify measure of generality or strictness of the pupil's observational activity).

The items of level 0 (C1-C2) are ranked on the basis of stimulating situation realization and forming conclusions out of the realization. The first category (C1) speaks about pupil's ability to observe the phenomena and manipulate the reality to get as much information as possible. For example, for ranking the category we need to consider amount of noticed details and its essentiality. First task is focused on a utilization of an observing skill (BSPS). The second category (C2) identifies ability to verbalize suitable conclusion based on the phenomena principle. To solve this problem a child needs to use an inferring.

Further the researcher starts to ask 1st level questions. While and after getting the answers the researcher can range the pupil's skills into the corresponding categories (C3 – C5). The main target of these categories is aimed at evaluation of the pupil's empirical investigation skills. The category C3 (it involves predicting and inferring to handle the item correctly) evaluates the pupil's ability to answer questions without using further investigation or with further investigation used for arguing for her/his answers (it means that pupil explains the answer and at the same time supports the answer by demonstrative manipulation with the reality). The category C4 evaluates the pupil's ability to be aimed at principal aspects of the investigated situation. And to a certain extent the C4 category measures how exactly the pupil has answered (comparing the content of the answer with the requested content of answer – what the question asked for). This task is oriented on using a classifying skill in the way of separation significant and insignificant aspects. To solve a problem in the category C5 a measuring needs to be used. It completes the previous category by measuring how the pupil is able to analyze the investigated situation into its details using goal-directed investigation while the pupil constructs own proceedings to get as much information as possible. The last category (C6) of empirical investigation measurement evaluates the pupil's tendency to move from simple description of what has been seen to interpretation (or explanation). We should emphasize that we are evaluating only tendency to move mentioned way, it means that the interpretations have to be recognized as a pupil's spontaneous activity, not as an answer to question which requires the explanation. In this category a child needs to interpret data (part of ISPS), and it involves predicting from the BSPS as well. The

C6 is a transitional category because it combines a utilization of BSPS and ISPS as well.

The second level of the questioning evaluates how the pupil is able to recognize causality in the obtained information. Category C7 identifies if the pupils are able to create hypothetic answers without further investigation. It is important to mention that in the empirical investigation elaboration of causal tasks requires construction of experiment (constructing hypotheses (ISPS) or predicting (BSPS) needs to be used to get lower score). The C8 category measures whether the pupil tries to explain what has been seen in a causal way or not (whether description of relationships between variables is used or not). If the researcher cannot recognize this kind of pupil's effort, the pupil still can get some points in this category, but only for ability to identify principal aspects of the situation. The last category (C9) of the second (causal) level of questioning is aimed at measurement of ability to argue for the pupil's declared hypotheses or empirical generalizations (interpreting data and drawing conclusions are used). The category determines a level of pupils ability to explain observed reality in logical way following the empirically obtained information or/and previously obtained knowledge.

The level of application tries to measure how the pupils are able to use all information they have at their disposal to create explanations, characteristics of principles and how they are able to apply these principles and explanation on different situations based on the same principles. The 10th category (in C10 making hypotheses is required) is aimed at pupil's ability to search for relations between what is currently observed and what he/she already knows, because some of the pupils might have nothing but tendency to define the main principle of the observed situation.

The next category (C11) specifies how the pupil is able to search for examples which can validate and confirm the created hypotheses. It is important to consider whether the pupils are really offering to confirm experience or they just search for visually similar situations. We can assign the points only if the pupil mentions different previously experienced situations and has a tendency to use them for clarification of the recognized principle. If the pupil is not able to interpret logical relation between observed situation (its principle) and some of the mentioned previously obtained experience or knowledge, we cannot assign any points, because this is not application or synthesis, it is only (very often subconscious) word association and it has nothing in common with abstract thinking as we would like to identify and measure it (we are identifying ability to generalize results).

The last category (C12) identifies how the pupil is able to elaborate general conclusions as a part of the ISPS. At the very best the elaborated general conclusions should describe the basic principle of the observed situation in a way which allows us to use it for explanation of many other

different situations. If the pupil is able to identify the principle of the observed phenomena but for the explanation he/she uses only actually observed situation, we will assign less points. For example this can happen if the pupil is able to draw a scheme of the observed phenomena with essential characteristics included, but he/she is not able to eliminate those characteristics which are typical for the observed situation, but are not principal.

Generalization of results: If the pupil obtains 0-6 points we can say that his/her observational skills are not developed enough to provide him/her as much empirical information as required for making explanation of the observed situation. It means that pupil's skills to realize scientific observation should be developed first. If the pupil gets from 6 to 22 points, we can say that he/she is able to make detailed observation, but without tendency to start the causal analysis of the obtained information. These pupils are able to generalize even though they still do not dispose with causal thinking. If the pupil obtains from 22 to 48 points, we still cannot say that the pupil disposes with abstract thinking, but his/her tendency to explain what he/she observes is apparent even he/she is still aimed at observed evidence. If the pupil gets 48 – 78 points, he/she disposes with abstract thinking and is able to make descriptive hypotheses, even though he/she is still not able to make application (to make connections between observed situation and previously experienced situations following the recognized principle). If the pupil gets more than 78 points, we can say that he/she is able to make application of the recognized and generalized principle.

Sample

The tool is going to be used in a sample of 10 primary pupils aged 8-10 in Slovakia. The simple size is in coherency with our main intention which is oriented to proposal of a suitable research tool. We wanted to appoint that in a case the pupils are not systemically led to develop the science process skills we cannot recognize any differences between pupils of lower classes and pupils of higher classes. 6 pupils are from 3rd grade and 4 pupils are from 4th grade of the same school oriented to classical education. The compulsory education starts in Slovakia in the age of six.

Results

The results show us that the children who have participated in our research have SPS differently developed. Even though the arithmetic average has got value of 60.5 point for pupils from 3rd class and 61.3 for pupils from 4th grade (no significant difference has been found), the standard deviations indicate a presence of qualitative differences in the SPS evaluation (the best score has been 94 and the worst has got value 29). After considering the data from the correlation matrix we can form a conclusion that the respondents have differently developed science process skills and the differences are not related to the class grade. We found significant

correlations between pupils of 3rd class and 4th class as well as within the assigned groups; for lover or opposite correlation the same (see Table 1 – correlation matrix).

Table 1. *Correlation matrix expresses correlations between 10 respondents in the evaluated categories (C1-C12). Highlighted numbers are correlations significant at p < 0.01.*

	R_1	R_2	R_3	R_4	R_5	R_6	R_7	R_8	R_9
R_1									
R_2	0.051								
R_3	0.364	**0.890****							
R_4	**0.620***	0.287	0.475						
R_5	**0.634***	**0.672***	**0.812****	0.494					
R_6	0.227	0.079	0.171	-0.240	0.418				
R_7	0.306	**0.927****	**0.914****	0.361	**0.827****	0.256			
R_8	-0.069	0.204	0.248	-0.581	0.270	0.478	0.235		
R_9	0.264	-0.247	-0.188	-0.338	0.207	**0.585***	-0.084	0.459	
R_10	0.406	0.142	0.314	0.006	**0.521***	**0.620***	0.315	0.434	0.264

R_1 – R_6 are respondents from 3rd grades; R_7 – R_10 are respondents from the 4th grade

Considering the target of this research, the qualitative analysis of the differences is more interesting and important. We would like to pay an attention to a distribution of obtained scores between the assigned levels of the evaluated skills. As you can see in the Table 2 and 3, some of the respondents have got very high score in the empirical level (level 0 and 1) and further not so high score in causal and application level, but we cannot find respondents which have got higher score in causal and application level and lower score in the empirical levels. Another interesting result is that some of the respondents do not get enough high score in a causal level, but they have got quite a high score in application level. It means that it is easier for the pupils to identify coherences and similarities between observed phenomena and their previous knowledge than to identify causal relations and create causal knowledge (for example, it is easier for them to create answer for an application question: *What is the similarity of the shadow and the darkness?* as for a causal question: *How does the length of the shadow depend on the angle between the nail and the light source - the torch*?).

Table2. Percentual formulation of the SPS evaluation in the assigned 4 levels – 6 respondents of 3rd class

	R_1		R_2		R_3		R_4		R_5		R_6	
level 0	9/10	90	10/10	100	10/10	100	8/10	80	6/10	60	7/10	70
level 1	12/20	60	11/20	55	12/20	60	12/20	60	4/20	20	9/20	45
level 2	16/30	53	18/30	60	13/30	43	11/30	37	11/30	37	9/30	30
level 3	20/40	50	29/40	73	31/40	78	25/40	63	15/40	38	12/40	30

Table 3. Percentual formulation of the SPS evaluation in the assigned 4 levels – 4 respondents of 4th class

	R_7		R_8		R_9		R_10	
level 0	10/10	100	10/10	100	8/10	80	6/10	60
level 1	13/20	65	14/20	70	11/20	55	4/20	20
level 2	21/30	70	21/30	70	15/30	50	7/30	23
level 3	35/40	88	12/40	30	12/40	30	6/40	15

Three children have got their score in a range 22 - 48 (R_5, R_6 and R_10). According to process of qualitative evaluation (designed in methodology) we point out that these pupils still do not have their abstract thinking well developed. A child who reaches this level is not able to think in a causal way. It is important to mention that all of these children have achieved only 2 or 3 points in a category 1 (where the pupils needed to get empirical information for further processing). We can say that the pupils have not observed the reality well enough and this fact created a barrier for using the other skills which directly depend on information acquired in observational process. Therefore they could not get better evaluation in the next tasks (upper levels).

Four children have got their score in a range 49-78 (R_1, R_4, R_8 and R_9). These pupils are able to use ISPS fractionally, because they still quite significantly incline to empirical information (in the causal and the application level they have achieved lower ratings). The main problems are connected with a hypotheses creation and with a result generalization. It has been really difficult for these pupils to think about the investigated reality in a general and critical way; even though they have demonstrated presence of abstract operations.

The last three children (R_2, R_3 and R_7) are assigned to the highest evaluative category (78 -100). We should mention that all of them have reached maximum points in the 0 level, which means that these pupils have well developed observational skills. For this reason they have been able to get as much information as they can about investigated reality and connect their new data with previous ones. The result validates the proposition that well developed BSPS are necessary for progress of ISPS development. The pupils of this evaluative category did not have a problem with identifying, understanding and manipulating with variables.

Anyway, the most important result is related to higher score obtained in an application level of questioning in comparison to a causal level of questioning. It is quite clear, that the pupils have much greater problems with dealing with "*why"* questions in comparison to "*how"* questions. For example, the pupils are more able to successfully deal with a question *how would you cause a slower downfall of a ping-pong ball* in comparison to a question *why a ping-pong ball falls down slower than a wooden ball of the same size.* Similarly they are more able to deal with the problem posed in a question: *how would you make more than one shadow of the only one object?*

In comparison to a question: *why does the shadow become longer when you change the direction of the light flow?* It means that pupils of this age are more oriented to an application of their previous experience and knowledge in comparison to a creation of new knowledge based on a formation of causal relations between information.

Discussion

Actually many authors (Beaumont-Walters & Soyibo, 2001; So, 2003; Bilgin, 2006; Etkina, 2007; Lawson, 2004; Mattheis & Nakayama 1988 and others) are interested in research on the science process skills (SPS). A majority of the researchers use science process skills tests as the main research method (for example: Mattheis & Nakayma 1988; Bilgin, 2006; Beaumont-Walters, Soyibo, 2001). The test as a research method cannot be used in specific situations, for example, when we would like to investigate science process skills of very young children. We are offering different way of SPS investigation with usage of structured interactive observation (as Harlen advices in her study: Harlen, 2000). Similar methods (observation and analyses of children's writings) can be found in a So's study (2003). The research explores children's cognitive processes during their own scientific investigation. On the contrary of our research all of those children attended a primary science project and were 1–2 years older than children in our research. Nevertheless we have acquired many related results. The children in both researches were neither able to ask testable questions nor make hypotheses. All of the children had problems to discover the relationship between empirical data and scientific theory, too. On the other hand the children from the So's research were able to give appropriate explanation and make reasonable conclusion which was not found in our study. The difference can be brought on either by a fact that the children in So's research were previously experienced in scientific investigation or (more likely) their skills were really better developed (concerning PISA results).

SPS tests were also applied in Beaumont-Walters & Soyibo's research (2001). They investigated 9th and 10th grade students and were focused on integrated science process skills. If we take our results only from the level 2 and 3 (related to investigation of integrated science process skills), the children from our research have had nearly no problem with identification of variables and they achieved the worst score in the category of formulating hypotheses. The same problem with appropriate formulation of hypotheses has been found also in the Beaumont-Walters & Soyibo's study. This result is confirmed also by Etkina's et al. (2007) study, even though the study has been aimed at much older respondents. Etkina investigated skills of making predictions and hypotheses of Ph.D. students. All of the students in a control group (without special science project) had problems with predicting and creating hypotheses. On the contrary, Mattheis & Nakayama (1988) marked formulating hypotheses as the second well developed skill; even though he has aimed at 6th, 7th and 8th grade students. Identifying

variables has been marked as the best developed skill, which has been shown in our research as well.

Conclusion

The described research tool is applicable especially when we would like to consider whether using of inquiry based science education at primary level has a required impact on pupils science process skills or not. The results can help to modify educational content of primary science education so that it will help the pupils to develop abstract manipulation more quickly. For example we should become aware of kind of questions we are going to use for initiating the pupils' inquiry activities. The inquiry based science education is not only about hands-on activities, it is mainly about minds-on activities. The IBSE should lead the pupils to improve their way of thinking. The result is that pupils can be better prepared for that kind of subject which requires the abstract manipulation as the physics, mathematics or chemistry. Using the research tool can also make the teachers' understanding of the inquiry based science education more clear. The teachers in practice can perceive their methodological interventions better way. They can find out what is the real educational efficiency of the IBSE.

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Appendix

Categories of observed skills

			scale						points
Stimulating situation level 0	C1	investigation of the reality is very general	1	2	3	4	5	investigation is very detailed and intentional	
	C2	constructed conclusion (results) is very general	1	2	3	4	5	constructed conclusion (results) is about basic principle	
								sum of points obtained in level 0	
Empirical investigation level 1	C3	correct answers formed by additive investigation	1	2	3	4	5	correct answers formed by already gathered information	
	C4	attention paid on unessential aspects of the situation	1	2	3	4	5	attention paid on essential aspect of the situation	
	C5	spontaneous investigation is superficial, trivial	1	2	3	4	5	spontaneous investigation is detailed, intentional and exact	
	C6	movement from description to explanation is guided by questions	1	2	3	4	5	movement from description to explanation is spontaneous	
								sum of points obtained in level 1	
Causal thinking level 2	C7	correct answers formed by additive investigation	6	7	8	9	10	correct answers – hypothetic, based on previous information	
	C8	persisting on empirical investigation, searching for empirical evidences	6	7	8	9	10	targeting the causality	
	C9	correct conclusions and statements without argumentation	6	7	8	9	10	correct conclusions with correct argumentation	
								sum of points obtained in level 2	
Application and synthetic thinking level 3	C10	focusing on the evidence provided by the empirical situation	6	7	8	9	10	identification of relations to previous knowledge	
	C11	giving examples which have only visual similarity with observed situation	11	12	13	14	15	giving examples with equal basic principle	
	C12	conclusions are correct and result from an empirical evidence	11	12	13	14	15	conclusions are generalizing the main principle	
								sum of points obtained in level 3	
								sum of points obtained in all levels (max. 100 points)	

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Fundamental elements in examining a child's right to education: A study of home education research and regulation in Australia

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Abstract

Home education provides valuable educational and developmental opportunities for children. An examination of Australia's research indicates many best educational practices, including more informed mediation, contextualised learning, and opportunities to exercise autonomy. Key features include learning embedded in communities and program modification in response to students' needs. Current state and territory legal requirements are examined within the context of this research and Australia's obligations to international human rights treaties. All jurisdictions accept home education as one way to meet compulsory education requirements. The extent to which respective laws then reflect understanding of home education research and practice varies. Most jurisdictions allow for a variety of educational approaches. Some oversight regulation could however be modified to reflect a better understanding of home education. Consultation with home educators and reference to research would assist the development of more uniform legislation and policy across Australia, and enable better regulatory practice.

Keywords: Home Education, Home Schooling, Human Rights, Educational Law

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Introduction

Home education is a legally accepted pathway that satisfies compulsory education requirements in all states and territories of Australia. This accords with Australia's being a signatory to international documents that recognize education as a human right but allow parents to choose the kind of education that best suits their child(ren) and family circumstances. This paper examines Australian research on home education in conjunction with the respective state and territory regulation. A review of research into Australian home education reveals a number of common themes that highlight what home education is and means to those who practice it. An examination of regulation of home education in Australia subsequently reveals that some jurisdictions demonstrate a better understanding of home education than others. As a consequence home education, whilst legal in all states, is facilitated to greater or lesser extents. It is suggested that a more uniform approach to regulation, informed by the research on home education in Australia and consultation with Australian home educators is needed. This would enable all jurisdictions to protect a child's right to education properly. By facilitating educational choices and understanding the value and success home education in Australia holds, the best educational outcomes for home educated children will continue to be achieved.

Australian Research on Home Education

Australian research into home education has grown since 1978 when a young teacher attempted several forms of alternative educational approaches as he tried to establish real life learning outcomes for students (Ennis, 1978). The first Australian research described home education from the perspectives of natural and 'unschooled' learning approaches (Krivanek, 1985, and Lampe, 1988) and was followed later by research of home education as used by religious families (Hunter, 1989, 1990, 1991, 1994).

There has been a growing body of Australian research on home education since the 1990s. This includes research by parliamentary reviews and government departments (Carrick, 1989, Education Queensland, 2003, Jacobs, Barratt-Peacock, Carins, Holderness-Roddam, Home & Shipway, 1991, Jeffrey & Giskes, 2004, New South Wales Office of the Board of Studies [OBS], 2000, 2004), postdoctoral (Thomas, 1998), doctoral (Barratt-Peacock, 1997, Jackson, 2009, and Reilly, 2007) studies, and academic research papers (Broadhurst, 1999, Carins, 1997, Clery, 1998, Hunter, 1989, 1990, 1994, Jackson, 2007, 2008, Jeffrey & Giskes, 2004, Reilly, Chapman & O'Donoghue, 2002, and Reilly, 2004).

Whilst the population of home educators in Australia cannot be known with certainty because some home educating families do not engage with registration processes, (Harding, 2006, Jackson, 2009, Jacobs et. al., 1991, and Reilly, 2007), such research identifies general characteristics of home educating families and their practices. These characteristics include

demographic information, parental reasons for choosing home education, the practice and experience of home education, student views and experiences, and experiences of families with special needs students.

Home educating families are found in city, suburban and rural locations throughout Australia (Barratt-Peacock, 1997, Education Queensland, 2003, Jackson, 2009, and OBOS, 2004). These families hold a wide variety of philosophical, political, secular and non-secular views reflecting those held by the broader community. They come from a wide range of educational backgrounds and belong to a wide range of employment categories and income levels. Mothers usually take the primary responsibility for educational opportunities and programs, although some fathers take the primary role. Home educating families regularly choose to live on one income. (Barratt-Peacock, 1997, Education Queensland, 2003, Harding, 1997, 2003b, 2006, Harp, 1998, Honeybone, 2000, Jackson, 2009, Jacob et. al., 1991, Jeffrey & Giskes, 2003, Lampe, 1988, OBS, 2004, Patrick, 1999, Simich, 1998, and Thomas, 1998). Parents both initiate education of children at home and move children out of mainstream institutions to home education (Harding, 1997, Jackson, 2009, and Thomas, 1998).

Australian research indicates many and varied reasons for families choosing home education. These typically fall into two categories – real or perceived negatives associated with education found in mainstream institutions and real or perceived benefits of educating children at home (Patrick, 1999). Examples of the real and perceived negative aspects of traditional schools include lower academic achievement, learning difficulties not catered for (especially for students with special needs), curriculum not meeting the needs and/or interests of students, social problems such as bullying, negative peer pressure and low self-worth, large class sizes, values acceptable to parents not being upheld by traditional schools, and their own children's unhappiness with traditional schooling. Positive benefits of home education are reported to include academic benefits, broader curriculum, flexible learning to cater for individual needs, higher self esteem, one-on-one/low teacher to student ratios, holistic learning opportunities connected to the 'real' world, broader social experiences and growth because of the ability to mix with wide age ranges of people, values teaching and stronger family relationships (Barratt-Peacock, 1997, Education Queensland, 2003, Harding, 1997, Hunter, 1994, Jackson, 2009, Jeffrey & Giskes, 2004, Krivanek, 1985, Maeder, 1995, New South Wales Board of Studies, 2004, Reilly, Chapman & O'Donoghue, 2002, Reilly, 2007, and Thomas, 1997). Some studies mention family cohesiveness, parenting roles, religious beliefs, and academic success as reasons for home educating children. However, the over-arching reason given for home educating children in Australia is that parents believe it is in the best interests of one, some or all of their children to be educated at home (Jackson, 2009, OBS, 2004, Reilly, 2007, and

Thomas, 1998). Distance from mainstream institutions is not usually the primary reason for the choice to home educate.

While there have been studies of academic ability in home educated students overseas (Rothermel, 2004, and Rudner, 1999), there has not been a significant study specifically conducted into this aspect of home education in Australia. However, a number of studies have included comment about academic achievements of home educated students (Harding, 2003a, 2006, Harp, 1998, Jackson, 2009, Lampe, 1988, McColl, 2005, Simich, 1998, and Thomas, 1998). Students are entering tertiary institutions with ease, small groups have used standardized tests and scored well and student entry into mainstream institutions at all levels is occurring with apparent ease. Students who do have problems academically usually have identifiable learning difficulties (Jackson, 2009). There are a number of sound educational reasons why these students are achieving at home (Jackson, 2008). Students have access to one-on-one learning opportunities, engage in significant amounts of family conversation (Barratt-Peacock, 1997, Brosnan, 1991, and Thomas, 1998), have parents and community members as mentors (Barratt-Peacock, 1997, 2003, and Jackson, 2008), have time and space to pursue interests and are able to exercise significant autonomy over their learning (Jackson, 2009).

Parents, either as solo families or through networks of home educators, typically access a wide range of community resources such as libraries, sporting events, tutors, and community organizations and facilities to ensure a wide range of learning opportunities. Organized home educator networks also provide regular opportunities for both learning and social connection. Students report they have different and valued social opportunities both with same ages peers and with those younger and older than themselves. Home educated parents and children contrast these vertically aged social opportunities with the limitations of same aged horizontal peer socialization found in mainstream institutions (Honeybone, 2000, Jackson, 2009, and Thomas, 1998).

A number of studies examine the practice of home education (Barratt-Peacock, 1997, Education Queensland, 2003, Harding, 2006, Jackson, 2009, Jacobs, 1991, OBS, 2004, Simich, 1998, Reilly, 2004, 2007, and Thomas, 1998). These studies consistently show that families choose from a range of approaches ranging from structured classroom type methods, unit studies which use themes children are interested in to teach a variety of subjects, 'natural' learning approaches based on student needs and interests, and/or an eclectic approach which combines more structured approaches for some subjects and natural learning approaches for others. Although many parents use a more structured and school like approach to begin their programs, most move to less structured approaches or modify their programs in keeping with the educational needs of their children (OBS, 2004, Reilly, 2004, Thomas, 1998).

Studies exploring student views of home education report students value their home education experiences for a number of reasons (Broadhurst, 1999, Brosnan, 1991, Carins, 2002, Clery, 1998, Honeybone, 2000, Jackson, 2007, 2009, Lampe, 1988, and McColl, 2005). Students highly value autonomy as experienced in their ability to choose when they learn, what they learn and where they learn, as well as making or contributing to the decision about whether to enter mainstream institutions (Brosnan, 1991, Clery, 1998, and Jackson, 2009). That learning environments are personally selected, and quiet spaces available where students can focus, is also reported positively. Satisfaction with learning taking place in a warm and supportive family environment is explicitly mentioned. Students also report the value of learning experiences that allow learning by 'doing' or experientially, through reading, research and/or demonstration, and one-on-one mentoring. These experiences provide the basis for home educated students developing into informed and engaged learners with relevant life skills grounded in community in different but worthwhile ways to their schooled peers. High self-esteem is also consistently observed in home educated children who accept themselves at home without reference to others (Jackson, 2009). Significantly they report that their positive self-esteem is challenged when they enter or return to mainstream institutions.

Two recent doctoral studies (Jackson, 2009, and Reilly, 2007) highlight the educational and social differences between mainstream schooling and home education as experienced in Australia. These studies also examine the reasons home education works effectively to educate and socialize students albeit differently to the education and social opportunities available in mainstream institutions. This includes consideration of why the home education option is important, why there is a need for informed and respectful dialogue and connection between home education and mainstream professionals, and why there is a need for the development of informed legislation.

Reilly's (2007) research examines the experiences of nine city families who chose home education for their intellectually disabled students. In that study, parents report their children learn more effectively and have more positive social opportunities at home than previously experienced in mainstream institutions. Learning opportunities are effective because, unlike the educational experiences provided in mainstream institutions, students have access to continual one-on-one teaching, progress consistently and are naturally monitored through ongoing interactions between parents and children. This allows for progressive modification of curriculum to meet specific immediate and long term learning needs of each child. Daily incidental and conversational learning opportunities in real life contexts which are relevant to the children's learning needs and future ability to adjust into the adult world are also found. Negative social experiences in mainstream institutions, which educational professionals have not been

able to eliminate, contribute to family decisions to remove children from mainstream institutions. At home, parents express relief and gratitude that their children are able to grow in the different and positive social environment provided by their practice of home education. Parents form connections with home education networks and various community personnel and resources. A few find collaborative and part-time connection with particular mainstream educational institutions beneficial. Educators and Department of Education officials, who, after observing the progress of these students, comment that mainstream institutions are inadequately equipped to provide the positive educational and social opportunities they witness being experienced by these children while home educated. Reilly (2007) concludes that educators, departmental officials and policy makers need to recognize, understand and support home education because of its positive contribution to the education, welfare and life outcomes of special needs children. These positive outcomes would flow through to society as they are able to adjust more effectively and responsibly to community.

In Jackson's (2009) study, three participant groups, home educating parents, students and educational professionals, evaluate their views and experiences of home educated students who make transitions into and out of mainstream institutions. The results from all three groups of participants indicate that most home educated students are able to move easily from home education to mainstream institutions. Educators describe average to above average academic abilities and social skills of most students. They identify recognizable learning difficulties which account for weak academic abilities while poor social experiences in schools are explained to be the result of family itinerancy or dysfunction rather than the practice of home education. Students all claim they learn more effectively at home than at school, even when they enjoy attending school, however, a few students identify areas where their home education experience or interaction with mainstream institutions could be improved. This includes two students who feel isolated due to family location in a rural area; students in two large families who report their parents sometimes have limited time to support their learning and this is exacerbated by externally provided curriculum not as responsive to their needs as they would like; and one student who feels his home curriculum had been controlled by a parent who subsequently acknowledged that more flexibility and student input is desirable. A few students describe social situations they find difficult when making the transition into mainstream institutions. Others, with giftedness or above average ability, find their abilities challenge the status quo of established class achievers which can lead to bullying, friction and misunderstanding. Values, established in families through discussion and mediation, are also sometimes challenged by mainstream peers who have not experienced such mediated learning of values.

In Jackson's study (2009), most professional educators acknowledge there are limitations evident in mainstream education contributing to poor

learning outcomes for some students, particularly those with different to average learning abilities. These limitations include set curriculum unresponsive to individual student needs and interests, limited ability to work effectively with individual learning styles, limited opportunity to cater to different levels of ability, and constraints set by specific time frames set for expected learning outcomes. Parents and students, on the other hand, speak highly of the relevant, flexible and personally mediated learning opportunities experienced at home catering for individual needs and interests. The positive outcomes home education provides to students, is expected to flow through and contribute to society in positive ways.

In both of these studies, a few mothers experienced stress and fatigue usually associated with parents using structured curriculum approaches. Jackson (2009) and Reilly (2007) conclude that there is a need for educational professionals and policy makers to have a greater understanding of what home education is and what it offers to students and to society in order to facilitate the best outcomes for students and families.

Legal Responsibility For and Regulation of Home Education in Australia

Having considered the research on home education in Australia, it is possible to consider where Australia lies with respect to legal responsibility and regulation of home education. The extent to which it reflects understanding of Australian home education is also examined.

Australia as a Party to the Universal Declaration on Human Rights and the Convention on the Rights of the Child

That every child has a right to an education is recognised in international instruments such as the United Nations Universal Declaration on Human Rights (UDHR) (1948) and the Convention on the Rights of the Child (CROC) (1990) to which Australia is a signatory. The UDHR provides that '[e]ducation shall be free, at least in the elementary and fundamental stages' [and] that 'elementary education shall be compulsory...'; and that 'parents have a prior right to choose the kind of education that shall be given their children' (Article 26(3)). Similarly, CROC provides 'states parties recognize the right of the child to education, and with a view to achieving this right ...shall make primary education compulsory and available free to all; and encourage the development of different forms of secondary education...' CROC also provides that 'states parties shall take all appropriate measures to ensure that the child is protected against all forms of discrimination or punishment on the basis of the status, activities, expressed opinions, or beliefs of the child's parents, legal guardians, or family members.' (CROC, Article 2(2)). This supports the argument that a child should not be discriminated against or punished should their parents choose to undertake the responsibility for educating their child(ren) themselves because of their beliefs.

These documents therefore require that education should be compulsory and place responsibility for such education in the hands of both parents and the state.

Neither the UNDHR nor CROC dictate what must be taught, however they do emphasise certain values that compulsory education should reflect. They both provide that education be 'directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms' (UNDHR Article 26(2), CROC (Article 29(1)(b)), and that 'it shall promote understanding, tolerance and friendship among all nations, racial or religious groups...' (UNDHR Article 26(2), CROC (Article 29(1)(d)). Further CROC emphasises education should include 'the development of respect for the child's parents, his or her own cultural identity, language and values, for the national values of the country in which the child is living, the country from which he or she may originate, and for civilizations different from his or her own' (Article 29(1)(c)); and 'the development of respect for the natural environment' (Article 29(1)(e)).

The extent to which Australia has adopted such principles is now discussed.

The Law in Australia

Australia is a federation, under which the Commonwealth, state and territory governments each have responsibility for governing different matters (Australian Constitution Act, 1900). Education is a matter that falls to the individual states and territories and is therefore regulated separately in each jurisdiction. Australia is a party to both the UNHDR and CROC.

In Australia all states and territories have legislation requiring compulsory education from the age of six to seventeen years (Education Act, 2004 (ACT), s10(2); Education and Training Reform Act 2006 (Vic), s2.1.1; Education Act 1972 (SA), s75; School Education Act 1999 (WA), s9; Northern Territory of Australia Education Act 2010 (NT), s21; Education (General Provisions) Act 2006 (Qld), s9; Education Act 1990 (NSW), s21B, Education Amendment Act 2009 (NSW); Education Act 1994 (Tas), s4). All jurisdictions recognise home education as a legal pathway to meet compulsory education requirements, subject to parents registering their child for home education (Education Act 2004 (ACT), s10(2); Education and Training Reform Act 2006 (Vic), s2.1.1; School Education Act 1999 (WA), s10(b), s48; Northern Territory of Australia Education Act 2010 (NT), s21(1)(b); Education (General Provisions) Act 2006 (Qld), Chapter 9 Part 5; Education Act 1990 (NSW), ss70-74; Education Act 1994 (Tas), s17) or gaining an exemption from the compulsory attendance requirements (Education Act, 1972 (SA), s76). This reflects the principles discussed above in relation to the UNHRD and CROC in that education is compulsory and that parents may choose what kind of education their child will undertake (both of which are enshrined by the state). The extent to which the laws

operate and/or the state plays a role thereafter varies amongst jurisdictions, as does a reflected understanding of what home education is and how it may be best facilitated. It is to discussion of the respective Australian jurisdictions that this paper now turns.

Only three jurisdictions define home education by statute. The focus is upon location being 'education conducted by one or both of the child's parents from a home base' (ACT) (Education Act 2004 (ACT), s129); 'schooling in the child's home, other than distance education provided by a government or registered non-government school in which the child is enrolled' (NSW) (Education Act 1990 (NSW), s3); and 'the education of the child provided by one or both of the child's parents, or a registered teacher, primarily at the child's usual place of residence' (Queensland) (Education (General Provisions) Act 2006 (Qld), s205). If we compare these definitions against the discussion of what home education is above, we see that they lack recognition that home education is a practical and successful alternative to school based education which embraces learning in the whole community (Paine, 2010). Such jurisdictions need therefore to explicitly extend their definition of home education into the broader community, and not restrict it to a home base nor suggest that it is school in the home. Secondly, these definitions shed no light on (or rather do not indicate an understanding of) what home education involves.

In the Northern Territory (NT), the Department of Education and Training (DET) states it 'recognises that the terms "home education" and "home schooling" are often used interchangeably' (DET, NT 2010). They state they '[choose] to use the term home education in preference to home schooling in recognition of the point of view that home schooling implies a more structured activity and curriculum position akin to school, whereas home education occurs when parents choose to educate their children from a home base.' Interestingly, whilst appearing to make the recognition lacking in the three jurisdictions above, it is the NT that imposes the strictest curriculum requirements and oversight regimes in Australia. Conditions that require such things ranging from interviews with parent(s), the proposed teacher and child; inspection of the facilities and resources available for the child's education; and monitoring of the child's education by inspecting work portfolios annually and the condition of the facilities and resources as often as authorised representatives consider necessary, are imposed (DET, NT 2010). There are requirements to document start and finish times, hours per day and days per week dedicated to a subject, the resources available for the education of the child including the availability of text books, reference books, audio visual equipment, personal computer and how the curriculum relates to their Board of Studies courses. The NT DET also require that parents report 'if the child is to be educated on his or her own, the opportunities for social interaction with children of similar age' (Ibid, p.4). These requirements suggest a view that home education is akin

to school and should adopt school like approaches. They also do not accommodate the ways in which home education may meet the particular educational needs of individual children, or may involve ongoing and progressive modification of educational programs. The NT provisions do not reflect understanding or knowledge of the research discussed above.

The South Australian (SA) Department of Education and Children's Services (DECS) state that continued approval for exemption from home education is conditional upon an annual home visit with a Home Education Project Officer to review the education program (Ibid). It is the view in this state that 'home education choice is exercised with the full knowledge of parental responsibilities in relation to the provision of a suitable education program, resources, learning environment and opportunities for social interaction' (SA Department of Education and Community Services, 2010). Programs need to align with South Australian Curriculum Standards, Accountability (SACSA) Framework (Ibid). SACSA describes eight Learning Areas, five Essential Learning and seven Key Competencies (English; Mathematics; Science; Design and Technology; Studies of Society and Environment; the Arts; Health and Physical Education; LOTE) (Ibid). Programs of study must be planned in advance to align with SACSA; integrate the Essential Learning and Key Competencies into learning tasks; utilise a range of resources; have clearly identified learning outcomes; incorporate a variety of teaching, learning and assessment methodologies; and involve students in the planning of stimulating education programs and encourage student negotiation of learning' (Ibid). Whilst not precluding less structured educational approaches this might not accommodate approaches in which activities are child led and facilitated by the adults rather than planned in advance (Barratt-Peacock, 1997, Jackson, 2009, Krivanek, 1985, NSW OBS, 2003, Reilly, 2007, and Thomas, 1997). The South Australian stipulations also do not encourage or enable progressive modification of programs which would allow flexibility to meet a child's changing learning needs. In South Australia parents are required to report on 'opportunities for social interaction.' However, this does not deny home educated children receive adequate socialisation opportunities, it simply requires proof that such social opportunities occur.

In Western Australia, there is provision for evaluation of the child's educational program and progress to be made in the first three months of registration and then once a year thereafter (School Education Act, 1999 (WA), s51). Such evaluation is 'to take place at a time agreed with the home educator at the usual place where the child's educational program is undertaken or at a place agreed to by the home educator and the home education moderator' (School Education Act, 1999 (WA), s51). Whilst requiring home educators to implement the state's curriculum framework (which similar to SA covers the above eight key learning areas), WA does not stipulate the approach that must be taken when addressing these areas. The Western Australian Department of Education and Training home

education policy states 'Parents have a right to choose from a wide diversity of learning approaches in providing their children with home education in the compulsory years of schooling....' (Department of Education and Training, (WA) 2006, p.8). They also emphasise flexibility in the delivery and evaluation of home education.

Tasmania similarly provides for a 'monitoring visit' however recognises that the subsequent report made by their oversight body should recognise that 'home education legitimately encompasses a wide range of philosophies, curricula and methods, ranging from highly structured courses to more informal learning programs' (Tasmanian Home Education Advisory Council, 2010), There are no requirements to follow a particular curriculum.

New South Wales requires application for registration which may be granted for six months to two years (Education Act, 1990 (NSW), ss71-72). Home educators must re-apply at the end of this period. No home visit is required, however registration may be cancelled if the parent refuses to allow an authorised person to enter at a reasonable time, the premises where the child receives schooling or to inspect those premises or records required to be kept for the purposes of the Act (Ibid ss74). The Office of Board of Studies (OBS) requires documentation satisfying them that the curriculum requirements which again include the eight key learning areas named above have been met. However, the educational approach taken when covering these areas is not judged.

In Victoria paper application and yearly notification is required that demonstrate a commitment to provide regular and efficient instruction, substantially addressing eight key learning areas in a manner which is consistent with the democratic principles outlined in the Education and Training Reform Act (Education and Training Regulations, 2007 (Vic)). Review may occur where there is a concern that democratic principles and/or key learning areas are not being addressed. Victorian legislation prohibits Victorian Registration and Qualifications Authority personnel from visiting the residences of home schooling parents without their consent (Ibid, s5.8.4.1(b)). If such a visit is agreed to, the child being home schooled is not required to be present and an advocate for the parent may be present (Ibid).

Both the ACT and Queensland also require registration, and bi-annual/annual reports respectively on the child's educational progress and that show the child is receiving a 'high quality education' (Education Act 2004 (ACT), s132; Education (General Provisions) Act 2006 (Qld), s211). In Queensland, a 'high quality education' is defined as one that has regard to the age, ability, aptitude and development of the child concerned; promotes continuity of the learning experiences of the child concerned; is responsive to the changing needs of the child concerned; reflects and takes into account current understandings related to educational and other development of children; is responsive to the child's need for social development; is

supported by sufficient and suitable resources; and is conducted in an environment conducive to learning (Queensland Government, Education (General Provisions) Act 2006 Section 217(2) Approved Form CRH-IV3: Reporting for Continuing Registration for Home Education (2010)). There is nothing in the legislation, regulations, or policy in these jurisdictions that stipulate educational approach or curriculum criteria. There are also no provisions in the ACT or Queensland legislation that provide for home visits or inspections. In Queensland, parents must also show that the education a child is receiving is 'responsive to the child's need for social development' (Ibid). These jurisdictions, along with Victoria tend to reflect less of a 'policing' role and more of an oversight role than the other states (Education Training Reform Act 2006 (Vic), s2.1.5).

Some allowance for conscientious objection or exemption from these requirements exists based upon grounds of religion in NSW (Education Act 1990 (NSW), s75); the child's health; the child's education; the child's sense of racial, ethnic, religious or cultural identity; the child's development; whether the exemption would benefit the child in the ACT (Education Act 2004 (ACT), s11H(1)); or by order or in a specific case in Victoria (Education Act 2004 (ACT), s11H(1), Education Training Reform Act 2006 (Vic), s2.1.5). Such objection or exemption however does not generally excuse families from having to demonstrate that they continue to meet the educational needs of their child(ren).

Conclusion

In Australia education is seen as a human right. The law in Australia plays an important role in protecting such a right. All jurisdictions provide for compulsory education. The responsibility for choosing where and how that education takes place then lies with parents (and their children). The law facilitates such choice by recognising home education as a legitimate way to meet compulsory education requirements.

Australian home education has a mixed and varied, but very positive face. An examination of research concerning demographics of home educating families in Australia shows they reflect all family types, in city, suburban and rural locations—with the exception that a parent or parents decide to take primary responsibility for their child(ren)'s education. Australian research on the reasons families choose home education show that such families view home education as offering a number of positives preferable to perceived or experienced negative aspects of institutionalised schooling. There is no single or primary reason that home education is chosen, but rather a number of reasons that lead families to believe this pathway is the best for their child(ren). Research on educational outcomes for home educated children shows good to above average academic performance, positive social adjustment, healthy self-concepts, and cohesive families relationships. It also indicates that home education has proven to be a good option for some families with children who have special needs

compared to mainstream schooling. Children who are home educated largely report great satisfaction with their educational and social experiences.

What is apparent however are the varying degrees to which Australian jurisdictions go beyond enshrining the right to education and their affect on parental autonomy to choose the kind of education their child(ren) will have. Monitoring regimes move from almost stifling to facilitative and enabling.

This paper has shown the Northern Territory is very strict, requiring extensive reporting and home inspections. It is also the jurisdiction that appears to understand approaches to home education the least, and to treat it with the most suspicion. Given the value to children of experiential learning and use of community resources, it seems nonsensical to fail to allow for approaches to home education that emphasise these things. The majority of jurisdictions however move further along a continuum. Whilst South Australia and Tasmania provide for home visits they both emphasise flexibility in delivery and evaluation of home education. Other Australian jurisdictions whilst requiring written reports only provide for home visits if there is agreement, or if there is a concern that a child's educational rights are not being met. Two states do not provide for home visits or inspections at all. Curriculum requirements in all but two of the jurisdictions require that home educated children cover eight key learning areas prescribed for all children of compulsory school age. In their emphasis on reporting and planning some jurisdictions do not easily accommodate natural learning/unschooling or progressive modification of programs, but they do not appear to be so prohibitive that such approaches could not be adopted. Others including Queensland, Victoria and Tasmania allow for a variety of educational approaches with varying levels of reporting required.

The law in Australia serves a useful purpose, in protecting rights and enabling freedoms – but there is room in some jurisdictions to improve the approach to regulation. The time is ripe. There are over two decades of research showing it to be a successful alternative to institutionalised schooling for some families. More uniform laws across Australia which reflect knowledge and consideration of such research in conjunction with consultation with home educating families could only serve to facilitate and enable better educational experiences for children.

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Effects of multiple intelligences supported project-based learning on students' achievement levels and attitudes towards English lesson

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Abstract

The aim of the research was to investigate the effects of multiple intelligences supported project-based learning and traditional foreign language-teaching environment on students' achievement and their attitude towards English lesson. The research was carried out in 2009 – 2010 education-instruction year in Karatli Sehit Sahin Yilmaz Elementary School, Nigde, Turkey. Totally 50 students in two different classes in the 5th grade of this school participated in the study. The results of the research showed a significant difference between the attitude scores of the experiment group and the control group. It was also found out that the multiple intelligences approach activities were more effective in the positive development of the students' attitudes. At the end of the research, it is revealed that the students who are educated by multiple intelligences supported project-based learning method are more successful and have a higher motivation level than the students who are educated by the traditional instructional methods.

Keywords: English lesson, multiple intelligences supported project-based learning, attitude towards English lesson, students academic achievement

Introduction

Bruner (1983) investigated why children find school learning so difficult. He discovered that this was because children experienced it as very separate

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from their real lives. His theory of learning is essentially "constructivist", a model of learning in which the child is seen as an "active agent" in his or her own learning, retaining, selecting and transforming information to construct knowledge which is shaped by his or her unique way of seeing and interpreting the world (Bas, 2010a; Brooks & Brooks, 1999; Senturk & Bas, 2010; Yurdakul, 2004). Bruner (1983) also thought that the child's learning is a process, not merely a product, which can be accelerated or enhanced by social and group processes.

The work of Vygotsky (1978) is very important since he emphasised the role of "social atmosphere/interaction". He sees children as constructing their knowledge from the social interaction of their learning contexts with all its possibilities and limitations. In this regard, as Anning (1991) suggests that children are unique in what they bring to the learning experience but tend to draw on the same kinds of learning strategy. This means that we must think of learners as having individual differences so that teachers need to pay attention to the organisation of their classrooms. They must also consider their students' "learning styles" (Dunn, 2000) and different "intelligence profiles" (Gardner, 1993, 1999). As teachers must consider their students' *intelligence profiles and learning styles* and they must also consider them as having individuals, they must use the modern language learning methods and approaches in their classroom in order to create an atmosphere which pays attention to learners with different learning preferences (Bas, 2009b). In the learning environment, it is essential that the learning atmosphere must be "student-centred" so that students in this atmosphere must do the activities by themselves or in other words they must adopt the responsibility of their own learning (Abbott & Ryan, 1999; Bas, 2008, 2009a; Brooks & Brooks, 1999; Yurdakul, 2004).

Project Based Learning Method and Education

The benefits of learning by practice have long been touted; the roots of the idea go back to John Dewey (Blumenfeld, et al. 1991). For over 100 years, educators such as John Dewey have reported on the benefits of experiential, hands-on, student-directed learning. Most teachers, knowing the value of engaging, challenging projects for students, have planned field trips, laboratory investigations, and interdisciplinary activities that enrich and extend the curriculum. "Doing projects" is a long-standing tradition in education (Merkham, et al. 2003).

The basis of project-based approaches is hardly new. Early in the 1920s, William Heard Kilpatrick advocated project-based instruction (Sunbul, 2007). His notion was that such instruction should include four components: purposing, planning, executing, and judging (Foshay, 1999). It is basically an attempt to create new instructional practices that reflect the environment in which children live and learn (Ozdemir, 2006).

Project-based learning is an instructional method centred on the learner. Instead of using a rigid lesson plan that directs a learner down a

specific path of learning outcomes or objectives, project-based learning allows in-depth investigation of a topic worth learning more about (Erdem, 2002; Harris & Katz, 2001). Project-based learning is a comprehensive approach to classroom teaching and learning that is designed to engage students in investigation of complex, authentic problems and carefully designed products and tasks (Blumenfeld, et al. 1991; Demirhan, 2002).

Project-based learning is still in the developmental stage. There is not sufficient research or empirical data to be able to state with certainty that project-based learning is a proven alternative to other forms of learning. Based on evidence gathered over the past years, project-based learning appears to be effective model for producing gains in academic achievement (Meyer, 1997; Ozdemir, 2006) and attitudes (Korkmaz, 2002; Meyer, 1997) although results vary with the quality of the project and the level of student engagement (Thomas, Michaelson & Mergendoller, 2002 as cited in Ozdemir, 2006).

Multiple Intelligences Theory and Education

While everyone might possess eight intelligences, they are not equally developed in any one individual. Some teachers feel that they need to create activities that draw on all eight, not only to facilitate language acquisition amongst diverse students, but also to help them realise their full potential with all eight. One way of doing so is to think about the activities that are frequently used in the classroom and to categorise them according to intelligence type (Larsen-Freeman, 2000: 170).

If we accept that different intelligences predominate in different people, it suggests that the same learning task may not be appropriate for all our students. While people with a strong logical / mathematical intelligence might respond well to a complex grammar explanation, a different student might need to comfort of diagrams and physical demonstration because their strengths is in the visual / spatial area. Other students who have a strong interpersonal intelligence may require a more interactive climate if their learning is to be effective (Harmer, 2001: 47).

Intelligence has traditionally been defined in terms of intelligence quotient (IQ), which measures a narrow range of verbal/linguistic and logical/mathematical abilities (Christison, 1996). Gardner (1993) argues that humans possess a number of distinct intelligences that manifest themselves in different skills and abilities. All human beings apply these intelligences to solve problems, invent processes, and create things. Intelligence, according to multiple intelligences theory, is being able to apply one or more of the intelligences in ways that are valued by a community or culture.

The current Multiple Intelligences Theory outlines *eight intelligences*, although Gardner (1993, 1999) continues to explore additional possibilities:

1. *Verbal / Linguistic Intelligence:* The ability to use language effectively both orally and in writing.
2. *Logical/Mathematical Intelligence:* The ability to use numbers effectively and reason well.
3. *Visual/Spatial Intelligence:* The ability to recognise form, space, colour, line, and shape and to graphically represent visual and spatial ideas.
4. *Bodily/Kinaesthetic Intelligence:* The ability to use the body to express ideas and feelings and to solve problems.
5. *Musical Intelligence:* The ability to recognise rhythm, pitch, and melody.
6. *Interpersonal Intelligence:* The ability to understand another person's feelings, motivations, and intentions and to respond effectively.
7. *Intrapersonal Intelligence:* The ability to know about and understand oneself and recognise one's similarities to and differences from others.
8. *Naturalist Intelligence:* The ability to recognise and classify plants, minerals, and animals.

The theory of multiple intelligences offers eight ways of teaching and learning styles. In this regard, armed with the knowledge and application of the multiple intelligences, teachers can ensure they provide enough variety in the activities they use so that as much of their pupils' learning potential can be tapped as possible (Bas, 2008, 2010b; Berman, 1998).

The younger the learners the more physical activity they tend to need and the more they need to make use of all their senses (Brewster, Ellis & Girard, 2003). According to Berman (1998), if children can draw or visualise an image, hum it or move through it first, they may be able to more easily talk or write about it. On the basis of the theory of multiple intelligences in this regard, children can also draw a picture while listening to a description, act out a nursery rhyme, follow instructions or make a shape or simple model while they listen to a description of it. This draws on learning by the ear and eye and is good for those with bodily-kinaesthetic intelligence.

There are research studies that explain the advantages of using project-based learning in educational settings (Balki-Girgin, 2003; Basbay, 2006; Fried-Booth, 1997; Gultekin, 2005; Korkmaz, 2002; Korkmaz & Kaptan, 2000; Williams, 1998; Yurtluk, 2003). However, only a few of them have focused on project-based learning in English teaching (Cirak, 2006; Kemaloglu, 2006). As just stated, only a few of the studies have focused on project-based learning in English teaching (Cirak, 2006; Kemaloglu, 2006). Although there are some studies which deal with the integration of the theory of multiple intelligences in English teaching, there are few studies (Ozdener & Ozcoban, 2004) which integrate multiple intelligences with project-based learning method. But these studies are not on English teaching. So this study is believed to open a new path to the *integration of*

multiple intelligences with project-based learning method. So, the purpose of this study is to examine the effects of multiple intelligences supported project-based learning on students' academic achievement levels and their attitudes towards English lesson.

Method

Research Design

An education programme was prepared in order to make students develop their achievement and attitude levels towards English lesson. In this study, an experimental method with a control group has been used (Karasar, 2005) in order to find out the difference between the students who were taught by multiple intelligences supported project-based learning method in the experiment group and the students who were taught by traditional instructional methods in the control group. The pre/post-test group research model is one of the most widely used research models in educational sciences (Dugard & Toldman, 1995).

Both groups were employed a pre-test and pre-attitude test prior to the experimental process. The subjects were given an achievement and an attitude scale tests towards English as a pre-test. Meanwhile, both the achievement and attitude scale tests were employed to both groups after the experimental process as a post-test.

Pre-test/post-test experimental design with a control group was used in the study (Kerlinder, 1973; Karasar, 2005). A small number of homogenous subjects provided us with information over a period of four weeks. To begin with, the subjects described what they actually did in the process of multiple intelligences supported project-based learning method.

Subjects of the Study

Two classrooms of 5th graders from Karatli Sehit Sahin Yilmaz Elementary School, Nigde, Turkey formed the subjects of the study. This study was performed amongst 50 elementary school students. 25 students from the 5-C class formed the experiment group and the rest of the students (25 students) from the 5-A class formed the control group of the study. The main reason for choosing this level was that in the reaching sequence of English classess, topics related to the foreign nations and countries are first introduced to students at this level in elementary level of education. All of the students in the study were around 11 years old. There were 13 (52%) male, 12 (48%) female students in the experimental group and 14 (56%) male, 11 (44%) female students in the control group. The families of the students in both groups had similar socio-economic backgrounds. The groups can be seen in the experimental design in Table 1 below:

Table 1. Organisation of the Experiment and the Control Groups

Experimental Group	The group on which multiple intelligences supported project-based learning method was applied
Control Group	The group on which traditional instructional methods were

applied

In order to investigate students' academic achievement levels and their attitudes towards English lesson, a specific lesson plan was prepared for the students in the experimental group. The academic achievement and the attitude scale tests towards English lesson were administrated to both groups in a single session as a pre-test. In four weeks, the experiment group was given various strategies for multiple intelligences supported project-based learning in the teaching session, but not the control group. Four weeks later, each of the groups was administrated the academic achievement and the English lesson attitude scale tests given as a post-test. As Manson & Bramble (1997) pointed out that the longer the time spent, the greater the probability that something could influence the subjects' environment that in turn would affect the results. Duration of four weeks was deemed appropriate to see the effects of the experimental treatment.

Procedures of the Study

In the experiment group, the following procedures have been applied. In the control group, traditional instructional methods have been used in the process of the study. The design of the study can be described as in the Table 2 below:

Table 2. Experimental Design Used in the Study

Groups	Pre-test	Experimental Design	Post-test
Experiment	$T1_{12}$	Multiple Intelligences Supported Project Based Learning Method	$T2_{12}$
Control	$T1_{12}$	Traditional Instructional Methods	$T2_{12}$

$T1_1$ ⟶ Academic Achievement Test
$T1_2$ ⟶ English lesson Attitude Scale Test

As can be seen in Table 2 above, one can see the scales applied on the subjects of the study. The academic achievement and the English lesson attitude scale tests were applied on the subjects of the study for two times before and after the experimental process.

This instructional treatment was conducted over four weeks in the 2009-2010 first term at Karatli Sehit Sahin Yilmaz Elementary School, Nigde, Turkey, 5th graders of two classes were enrolled in the study. The classes were selected randomly from the stated classes of the elementary school. Firstly, the academic achievement and the English lesson attittude tests were performed as a pre-test. In the next step, elementary school 5th grade courses were taught to the control group by using the traditional instruction methods and to the experiment group by using the multiple intelligences supported project based learning method.

After the topics in the lesson plan to be studied were selected, the researchers provided the necessary materials that reflect the principles of multiple intelligences theory and Project based learning method. Then, drawing on relevant research, all activities were developed by the researchers. Lesson plans for the procedure were based on Gardner's (1993, 1999) suggestions on teaching for a deep learning. In this study, experiment group studied the topics of the foreign nations and countries through multiple intelligences supported project based learning method related activities while the control group studied the same topics through more traditional activities.

In the control group, the teacher directed strategy represented that the traditional instructional methods were used in the course. The student was instructed only with traditionally designed learning material. Most of the time, the teacher presented the topics and the students listened to their teacher and answered the questions asked by their teacher. At the same time they carried out activities in their text-books. The instruction for the control group varied in the following ways. In terms of direct instruction, the practice best applicable to this method was drill and practice; students were taught the objectives through teacher-directed lectures, notes on the overhead, notes on the board, practice problems from the textbook, teacher developed worksheets, and the student workbook, which accompanied the text. However, in the experimental group, the activities were prepared in light of multiple intelligence supported project-based learning method. Different types of activities were taken for different types of intelligences of students by taking the lesson plan samples prepared for the multiple intelligence supported project-based learning method.

All courses attempted to model eight ways of multiple intelligences. The course structure incorporated two major conceptual frameworks for instruction. One was the multiple intelligences learning ways (Armstrong, 2000), and the other was the project-based learning method (Ciftci, 2006; Sunbul, 2007). In the beginning of the study, the students were appointed to eight multiple intelligences heterogeneous centres. These heterogeneous centres were created according to the principles of multiple intelligences theory. The students were given subjects dealing with some of the topics of the foreign nations and countries. The students worked in identical multiple intelligences centre so that the students were made to work on the given topics in the centres.

Firstly, students studied the environmental topics in working centres. For example, the procedure started with a reading session (verbal-linguistics intelligence) as a whole class-activity. The reading text was about the foreign nations and countries written by the researchers. It was hoped that this topic would be interesting for the students especially for the ones with highly developed verbal-linguistic intelligence. Before the text was given to students, some pictures of the foreign nations and countries were demonstrated to draw students' attention and provide a preparation for the

topic to be taught. The students were asked some questions about the text itself. Then, the participants listened to (musical intelligence) a selection of the national anthems and songs. As a second musical activity, they learnt a song adapted and changed from English into Turkish, "We are the World". The lyrics of this song were changed by the researchers in order to cover the basic vocabulary and insight of the foreign nations and countries. In the visual-spatial intelligence centre, students watched some documentary on the foreign nations and countries. Also, they were made to draw pictures on the foreign nations and countries and these pictures were demonstrated at school. In the naturalist intelligence centre, students were introduced to the geography and natural resources of the related countries. Also, in this intelligence centre, students were provided with a map of the world on which various countries were distributed. In the logical-mathematical intelligence centre, students investigated the demographic information related to the given countries via the Internet and other sources. In the intrapersonal intelligence centre, students were given pictures about some foreign nations and countries and they were asked to compare these nations and countries with each other in terms of geography, language, origin, etc. In the bodily-kinaesthetic intelligence centre, the students acted out a play which was developed by the researchers and then they acted out the play which reflected the cultural motives of those countries and nations at school. In the interpersonal intelligence centre, students organised a "world club" at school and then made short visits to the classrooms in their school and informed the students about some of the countries and nations in the world. They wanted to make the students be aware of the other nations in the world. They also published information cards about those foreign nations and countries and then they distributed them both to the students at school.

Secondly, the students created projects and activities according to the profile of their intelligence centre. When the students created their projects, they were reassigned to different groups in order to make them work in different multiple intelligences centres. The students studied on the foreign nations and countries by using different means of learning such as reference books, the internet, video conferencing, interviewing, etc. The students also learnt more from other resources including the teachers at school. In this process, the teachers helped the students for finding the materials and information, etc. for the creation of their projects. The students in these multiple intelligences centres studied in eight groups so that they studied to gain awareness towards the environment. The main aim in this education was to develop students' cultural awareness and knowledge levels of other nations and countries in the world. It was also aimed that the students feel themselves as a mutual citizen of the world.

Instruments

Academic Achievement Test: In order to collect the data related to academic achievement of the students, "*the academic achievement test*" developed by the researchers was conducted. A multiple-choice test including fifty items

(each item is 2 points; total score is 100) was developed and the reliability and validity of of the test were made. This test is used to measure the students' academic achievement in "*the foreign nations and countries*" unit. The test items which measure the objectives of academic achievement levels of the students in English lesson in the elementary school curriculum in Turkey.

The test was administrated on a total number of seventy-six students in an elementary school. In the first place, the item and test statistics of the achievement test were computed for reliability and validity. The reliability of the knowledge test was done by KR-20 reliability analysis method (Tekin, 1996; Yilmaz, 1998) so that the reliability value of the test was found as r = .88 and the test difficulty (P_j) was found as .59 and the test discrimination (rjx) was found as .48 so that it is revealed that the test is reliable and it was applied on the students both in the experiment and the control groups.

Table 3. Statistics for the Environmental Awareness Knowledge Test

Number of the Students	Number of the Questions	$\overline{X}$	Std. Dev.	KR–20	Average Test Difficulty	Average Discrimination of the Test
76	50	67.53	12.03	0.88	0.59	0.48

As seen in the table above, the environmental awareness knowledge test has a reliability of .88, an average level of test discrimination (.48) and an average level of test difficulty (.59). In the light of the data gathered for the academic achievement test, it can be said that the test has a high level of reliability, a medium level of difficulty and a high level of test discrimination.

English Lesson Attitude Scale Test: In this research, the "*English lesson attitude scale*" was used in order to measure students' attitudes towards English lesson. The scale was arranged by having done the reliability and validity studies and used to evaluate the attitutes of elementary school students towards English lesson by the researchers. The attitude scale test is a *five-point likert type scale* (which was used to differentiate orientations from 1 as *low* and 5 as *high*) reliability and validity of which have been made by *Cronbach Alpha* analysis, including 27 items that measure students' attitudes towards English lesson. The *Cronbach's Alpha* value of the attitude scale was found as α = .92. The Kaiser-Mayer-Olkin (KMO) sampling adequacy result was found as .884 and the Barlett test result was found as χ^2 = 10134.161 (p = .000). These results show that there is a strong correlation amongst the items. In light of the data, it can be said that the attitude scale test is both reliable and valid to be used in the current research.

Analysis of the Data

In this study, the statistical techniques such as *mean* ($\overline{X}$), *standard deviation* (Std. Dev.) and the *t-test* were used in the analysis of the data. The

p value was held as 0.05. Significance level was determined by taking *p* values into consideration so that $p > .05$ meant there was not a meaningful difference and $p < .05$ meant there was a meaningful difference. The statistical analyses have been done by means of *SPSS 15.0* statistical package programme for windows.

Limitations of the Study

Small sample size is one of the limitations of the study. The number of the participants in the study was limited to the number of 5th graders (totally 50 students) in *Karatli Sehit Sahin Yilmaz Elementary School*, Nigde, Turkey. Another limitation arises from the subject of English lesson since "*foreign nations and countries*" unit was used in the experiment and the control groups. In the experiment group, multiple intelligences supported project-based learning method was used. In the control group of the study, traditional instructional methods were used.

It was aimed to examine and observe how the multiple intelligences supported project-based learning method influence students' gaining of academic achievement and attitudes towards English lesson in this study. In this regard, the findings obtained from this study cannot be generalised to other settings.

Hypotheses

In order to identify the differences between the students of the experiment group and the students of the control group, following hypotheses were tried to be tested in the light of the acquired data in the study:

1. There is a significant difference between the achievement levels of the students in the experiment group and the students in the control group in terms of the usage of multiple intelligences supported project-based learning.
2. There is a significant difference between the attitude levels of the students in the experiment group and the students in the control group towards the lesson in terms of the usage of multiple intelligences supported project-based learning.

Results

The results given in tables were obtained from the students' answers to the achievement test and to the attitude scale test towards the English lesson. In this part of the study, the acquired data will be given with calculated analyses in tables below.

Analysis of the 1st Hypothesis

The first hypothesis of the study was "There is a significant difference between the achievement levels of the students in the experiment group and the students in the control group in terms of the usage of multiple intelligences supported project-based learning".

Table 4. Comparison of Pre-Test Achievement Scores of the Students in the Experiment and the Control Groups

Groups	N	$\overline{X}$	Std. Dev.	df	t	p
Experiment	25	33.6	13.9	48	0.342	.73*
Control	25	32.2	15.0			

*$p > .05$

In Table 4 above, the pre-test achievement scores of the students in the experiment group and the control group have been compared. The average score of the students in the experiment group has been found as $\overline{X}$= 33.6±13.9; and the average pre-test score of the students in the control group has been found as $\overline{X}$= 32.2±15.0. The difference between the students of these two groups has been analysed through independent samples t-test. The accounted t-value is $t_{(48)}$= 0.342. According to these results, there is no statistically significant difference between the pre-test scores of the students of these two groups in 0.05 level (p = .73, p > .05). Prior to the study's experimental process, it can be said that both groups' pre-learning levels in English course are equal to one another.

Table 5. Comparison of Post-Test Achievement Scores of the Students in the Experiment and the Control Groups

Groups	N	$\overline{X}$	Std. Dev.	df	t	p
Experiment	25	74.6	14.2	48	3.29	.0019*
Control	25	60.2	16.7			

*p<.05

The post-test achievement scores of the students in the experiment and the control groups have been compared in Table 5 above. The average post-test score of the students in the experiment group has been found as $\overline{X}$= 74.6±14.2; and the average post-test score of the students in the control group has been found as $\overline{X}$= 60.2±16.7. The difference between the two groups has been analysed through independent samples t-test. The accounted t-value is $t_{(48)}$= 3.29. The students in the experiment group ($\overline{X}$= 74.6) showed significant achievement compared to the students in the control group ($\overline{X}$= 60.2). So according to these results, it can possibly be said that there is a statistically significant difference between the post-test scores of the two groups in 0.05 level (p = .0019; p < .05).

Table 6. Comparison of Achievement Scores of the Students in the Experiment and the Control Groups

Groups	Pre Test			Post Test			Achievement			
	N	$\overline{X}$	Std.Dev.	N	$\overline{X}$	Std.Dev.	$\overline{X}$	Std.Dev.	t	p
Experiment	25	33.2	13.9	25	74.6	14.2	41.0	3.97	10.85	.000*
Control	25	32.2	15.0	25	60.2	16.7	28.0	4.48		

*$p < .05$

In Table 6 above, together with the results of the pre-test and the post-test, achievement scores and the t-values obtained from the achievement test scores could be seen. When one looks at the distribution of the post-test scores applied to both groups at the end of the research process, the average score of the experiment group has been found as $\overline{X}$= 74.6±14.2; and the average score of the control group has been found as $\overline{X}$= 60.2±16.7. The achievement scores have been accounted by using the difference between the pre-test and the post-test of the students in the experiment and the control groups. The average achievement of the students in the experiment group has been found as $\overline{X}$= 41.0±3.97; and the average achievement of the students in the control group has been found as $\overline{X}$= 28.0±4.48. The accounted t-value between the average achievement scores of the two groups is t = 10.85. This result shows that the average difference between the two groups is statistically different (p = .000, p < .05). When one looks at the average of the groups, it can be seen that the students in the experiment group have reached a higher achievement level compared to those in the control group. The experimental method, which is multiple intelligences supported project-based learning, applied has been more effective than the traditional language teaching methods in the control group. So the statistical analysis and findings of this study have justified the correctness of the first hypothesis.

Analysis of the 2nd Hypothesis

The second hypothesis of the study was "There is a significant difference between the attitude levels of the students in the experiment group and the students in the control group towards the lesson in terms of the usage of multiple intelligences supported project-based learning".

Table 7. Comparison of Pre-Test Attitude Scores of the Students in the Experiment and the Control Groups

Groups	N	$\overline{X}$	Std. Dev.	df	t	p
Experiment	25	1.72	0.678	48	0.207	.84*
Control	25	1.68	0.690			

*p > .05

In Table 7 given above, the pre-test attitude scores of the students in the experiment and the control groups could be seen. The average pre-test attitude score of the students in the experiment group has been found as $\overline{X}$= 1.72±0.678; and the average pre-test attitude score of the students in the control group has been found as $\overline{X}$= 1.68±0.690. The accounted t-value between the average scores of the two groups is $t_{(48)}$= 0.207. The data obtained are not statistically significant in 0.05 level since the pre-test attitude scores of the students of these two groups are similar.

Table 8. Comparison of Post-Test Attitude Scores of the Students in the Experiment and the Control Groups

Groups	N	$\overline{X}$	Std. Dev.	df	t	p
Experiment	25	2.56	0.507	48	3.55	.0009*
Control	25	1.96	0.976			

*$p < .05$

The post-test attitude scores of the students in the experiment group and the control group can bee seen in Table 8 above. The average post-test attitude score of the students in the experiment group has been found as $\overline{X} = 2.56 \pm 0.507$; and the average attitude post-test score of the students in the control group has been found as $\overline{X} = 1.96 \pm 0.976$. The t-test value obtained from the average scores of the two groups is $t_{(48)} = 3.55$ which shows a statistically significant difference ($p = .0009$, $p < .05$). In light of these data acquired in the research, it can be said that the students in the experiment group have reached higher attitude scores compared to those in the control group. The experiment method (multiple intelligences supported project-based learning) applied has enabled the students to develop positive attitudes towards English lesson. So the statistical analysis and findings of this study have justified the correctness of the second hypothesis of the study.

Conclusion and Discussion

Based on the findings obtained in the study, it can be said that there is a significant difference between the achievement levels of the students who have been educated by multiple intelligences supported project-based learning method and the students who have been educated by the traditional language teaching methods. The students who have been educated by multiple intelligences supported project-based learning method have become more successful than the students who have been educated by the traditional language teaching methods. Gultekin (2005) aimed to investigate the effects of project-based learning on fifth grade students' learning outcomes. In addition to academic success of the students, he found that project-based learning made students happy during the learning process by providing them with rich learning experiences. Similarly, Toci (as cited in Ozdemir, 2006) aimed to determine effects of project-based learning on intrinsic motivational orientation. It was reported that when the learning environment had an appropriate design, students' attitudes, and motivation increased. Meyer (1997) studied fourteen fifth and sixth grade students' challenge seeking during project-based mathematics instruction in one classroom. They drew on five areas of research: academic risk taking, achievement goals, self-efficacy, volition, and effect. They reported on the effects of fifth and sixth grade students' motivation and that although the surveys were useful in characterizing general patterns of challenge seeking, more individual and contextualized information was necessary for understanding how to support students engaged in challenging academic

work, such as project-based learning. According to the results, project-based learning increased the students' achievement level.

In studies made by Ciftci (2006), Cirak (2006), Chen (2006), Sylvester (2007), Bagci, et al. (2005), Gultekin (2005), Ozdemir (2006) and Kemaloglu (2006), it was found out there was a significant difference in the achievements of knowledge level between the groups, which multiple intelligences supported project-based learning method (experimental group) and the other group for which the traditional language teaching methods (control group) were used. The students in the experimental group which multiple intelligences supported project-based learning method was used had a more achievement level. These results resemble to the result of the present study. It can be said based on the findings; multiple intelligences supported project-based learning method was more effective on the development of students' academic achievement levels than the traditional language teaching methods. Demirel, et al. (2000) and Yurtluk (2003) studied the effect of the project-based learning approaches on students' achievement levels. In these researches, no change was observed in the achievement levels of the students both in the experimental and the control groups.

In terms of attitude towards English lesson, there is significant difference between the experiment group and the control group. The students who have been educated by multiple intelligences supported project-based learning method have been found out to have more positive attitude levels to English lesson than those who have been educated by the traditional language teaching methods. Ciftci (2006), Gultekin (2005), Erdem & Akkoyunlu (2002) and Ozdemir (2006) carried out studies by using Project-based learning method in learning atmospheres. They explored students' attitudes towards lessons by project-based learning method. In their studies, they found that there was a significant difference in the attitude levels towards the lesson between the groups, which project-based learning method (experimental group) and the other group for which the traditional language teaching methods (control group) were used. The students who were educated by project-based learning method developed more positive attitudes towards the lesson than the students who were educated by the traditional language teaching methods. These results resemble to the result of this study. It can be said based on the findings; project-based learning method was more effective on the development of students' attitudes towards lesson than the traditional language teaching methods. Demirel, et al. (2000) and Yurtluk (2003) investigated the effects of project-based learning approach on learning process and learners' attitudes. In their researches, it was found that there was no significant difference between pre- and post-test results of attitude scale in control and experimental groups. Ozdener & Ozcaban (2004) used project-based learning method by integrating multiple intelligences with it in computer courses. They found that the students who were educated by multiple

intelligences supported project-based learning method were more successful than the students who were educated by the traditional language teaching methods. In other words, there was a significant difference in the achievements of knowledge level between the groups, which multiple intelligences supported project-based learning method (experimental group) and the other group for which the traditional language teaching methods (control group) were used. The students in the experimental group which multiple intelligences supported project-based learning method was used had a more achievement level. This result also resembles to the result of the current study.

Korkmaz (2002) and Ciftci (2006) found out in their studies that students who were educated by project-based learning method were more successful in problem solving skills, academic risk taking and creative thinking skills. On the results of these studies, it can be said that project-based learning method not only has more positive effects on students' academic achievement levels and attitudes towards the lesson, it has also more positive effects on students' academic risk taking, problem solving and creative thinking skills. According to Blank (1997), Cinar, et al. (2005) and Ciftci & Sunbul (2006), students in the project-based learning atmosphere are exposed to a wide range of skills and competencies such as collaboration, project planning, decision making, critical thinking and time management. Collaborative learning allows students to bounce ideas off each other, voice their own opinions, and negotiate solutions - all skills that will be necessary in the workplace. As Ozdemir (2006) states, a project-based learning lesson provides students with the opportunity to learn in an authentic, challenging, multidisciplinary environment, to learn how to design, carry out, and evaluate a project that requires sustained effort over a significant period of time, to learn to work with minimal external guidance, both individually and in groups, to gain in self-reliance and personal accountability. Both teacher and peers can provide support, encouragement, and models. Where expectations for children's learning are high it is important that the social interaction itself be designed to facilitate learning.

The researcher in this study saw that the analysis of the experimental study has indicated that the experimental group students' achievement level was significantly higher than those taught using traditional language teaching methods. The most important thing in research was the experimental group students had more fun when they were learning and they did, touched, saw, and spoke about the things they learnt and they also had the change of socialisation and cooperation which are more important for them in these ages. The researcher also sees that these project-based learning helps the learners to develop many skills like, physical, intellectual, social, emotional and moral skills which are the skills the young learners have to develop. In project-based learning method, students used different types of intelligences. Students created projects integrating eight types of intelligences of multiple intelligences theory. By this way,

students not only had high achievement levels in English lesson, but also they had a chance to practise their different skills such as drawing, writing, thinking, etc. as well as using their different intelligence types like spatial, musical, verbal, social intelligences, etc.

Suggestions

As a result of this study, in which the effects of multiple intelligences supported project-based learning method on achievement and attitude levels of students in English lesson have been examined, the following suggestions can be given depending on the findings obtained:

1. In light of the gathered data in the study, multiple intelligences supported project-based learning method has been found to be more effective on students' achievement levels and attitudes towards the lesson than the traditional language teaching methods. So, it is recommended the teachers should use this method in their lessons. Because, after the experimental process of this method, students have risen their achievement levels and attitudes towards the lesson in a greater extent.
2. Seminars and courses should be organised as to train teachers to use this method effectively in their classrooms so that they can create a more positive classroom atmosphere.
3. Teachers should direct the process of the method effectively because if they cannot direct the method effectively, students can be frustrated and demoralised, they can be bored with the lesson and the method can be unsuccessful from the beginning of the process.
4. By this method, the learning environment is organised in a "student-centred" way. Students do not only memorise the concepts and other things, they do study the learning material deeply. In other words, they have a chance to practise their understanding on the learning material with project-based method. So the learning environment should be organised so that students interact face to face with each other and share the responsibility of the learning process.
5. Teachers should give projects to students so that students have a chance to select from a number of subjects. In addition, teachers should pay attention to the students so that the students organise their projects with the principles of multiple intelligences theory. For example, if students want to create a project on "foreign nations and countries", they can create their projects in *eight ways* of the theory of multiple intelligences.

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Evaluation of learning and teaching process in Turkish courses

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Abstract

A radical educational reform occurred in Turkey in 2005; and curriculum of primary education courses was renewed. New curriculum was prepared based on constructivist approach. In this scope, curriculum of Turkish course was also renewed. This study aims at evaluating applications and opinions of teachers and students about learning and teaching process prescribed in Turkish Course (1st-5th Grades) Curriculum. Within the scope of the study, semi-structured interview was made with 10 teachers and 12 students. In addition, process teaching a text was evaluated via structured observation method in 5 different classes. According to the results of the study, primary school teachers find some stages in learning – teaching process prescribed in the curriculum unnecessary and therefore do not apply them. Teachers mentioned that some texts are above the student level; and they sometimes experience time and material problems. It was seen in the present study that teachers do not have enough information about learning and teaching process in the new curriculum; they do not have high success levels in the applications; and they usually do not apply the forms for evaluating the process in the curriculum. It was found out that, in spite of these problems, courses are student-centred as prescribed in the curriculum; and students have positive opinions about stages of learning and teaching process.

Keywords: Turkish Course, Curriculum, Learning and Teaching Process

Introduction

A radical educational reform occurred in Turkey in 2005; and curriculum of primary education courses was renewed. New curriculum was prepared

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based on constructivist approach. In this scope, curriculum of Turkish course was also renewed. Learning and teaching process prescribed in the curriculum aims at turning students into active individuals who think, criticize, express themselves and construct the knowledge (MEB, 2005). Change of Turkish Course (1st-5th Grades) Curriculum led to an alteration also in learning and teaching process. Learning and teaching process was prepared in a more detailed way in this curriculum when compared to the previous ones. In this curriculum, learning and teaching process was dealt in five stages: "Preparation, Understanding, and Constructing in Mind, Self-expression, Measurement and Evaluation"

Table 1. Learning and teaching process according to Turkish (1st-5th grades) curriculum

Stage	Sub-stage
I. Preparation	1. Preliminary Preparation 2. Mental Preparation a. Activating the foreknowledge b. Working with key words c. Recognizing and predicting the text d. Goal setting e. Determining types, methods and techniques
II. Understanding	1. Visual Reading, Listening and Reading a. Visual reading b. Listening c. Reading d. Working with unknown words 2. Examining the text 3. Developing the vocabulary
III. Constructing in Mind	1. Associating with Daily Life 2. Associating with Kemalism, Other Courses and Sub-disciplines 3. Research
IV. Self-expression	1. Preliminary Preparation 2. Mental Preparation a. Activating the foreknowledge – determining topic b. Goal setting c. Determining methods and techniques ç. Determining type and presentation format 3. Applying the Rules 4. Speaking, Writing and Visual Presentation 5. Using the Vocabulary
V. Measurement and Evaluation	

Stages of learning and teaching process are explained below:

I. Preparation: Main target of preparation stage is to enable students to be prepared for the course physically and mentally. This stage comprises of preliminary preparation and mental preparation sub-stages. Preliminary preparation includes the actions such as student and teacher's preparing equipments, choosing materials, bringing objects and models necessary for the presentation and determining the place to sit (Güneş, 2007; MEB, 2005). Mental preparation stage covers practices such as bringing out the

foreknowledge of students about the text to be covered in Turkish course and supporting this knowledge with various activities (MEB, 2005). According to Temur (2007), teacher should allocate enough time to preparation stage and take into consideration environmental conditions and social opportunities present in the preparation stage as well as personal characteristics, knowledge and experiences of students.

II. Understanding: Understanding refers to the way of thinking on information obtained via listening, reading and visual reading; searching the reasons of it; and making deductions and assessments about this information. Understanding stage in the curriculum comprises of activities such as visual reading, listening, and reading, working with unknown words, examining the text and developing the vocabulary (MEB, 2005: 163). The students use the ideas, which they form in their minds in mental preparation stage for understanding the text.

III. Constructing in Mind: This stage was called "Learning via Text" in original format of the curriculum (2005), but it was named as "Constructing in Mind" with the amendment in 2009. In the curriculum, it was required "to enable student to associate what is learnt with daily life, other courses and sub disciplines and to investigate a new topic based on the text" (MEB, 2005, p. 153) in order for students to construct the acquired knowledge in their minds. Practices relating to "thinking, questioning, conceptualizing, making decisions and solving problems" will be made in order to ensure constructing in mind. What is learnt will be associated with daily life, topics of Kemalism and other courses in order to ensure transfer and continuity of knowledge.

IV. Self-expression: Most important target of mother tongue education is to develop understanding and explaining skills of the students (Yıldız, 2003; Güzel, 2010). Student's explanation of information, which he/she learns from the text in learning and teaching process, in different situations in the class environment increases the continuity of what is learnt. Stage of self-expression stage was constituted in Turkish Course (1st-5th Grades) Curriculum in order for student to transfer the things, which he/she learns, in written or orally in the class environment. Self-expression stage includes explanation-based speaking, writing and visual presentation skills among language skills.

V. Measurement and Evaluation: Measurement and evaluation is an inseparable component of learning and teaching process (Balcı & Tekkaya, 2000; Kutlu, 2005). New Turkish curriculum introduced important changes also in the topic of measurement and evaluation. Measurement and evaluation approach in the curriculum was prepared in order to guide the students and to determine what students know rather than what they do not know, based on directing the process so as to create most appropriate learning-teaching environment instead of giving marks to the students (Yangın, 2005; Göçer, 2007; Birgin & Gürbüz, 2009).

Measurement tools such as portfolio, rubric, project assignment, performance assignment, group evaluation, peer evaluation and self-evaluation forms, observation forms, concept map, attitude scale and control list intended for evaluating the process are used in new curriculum in addition to traditional measurement and evaluation methods such as written examination, oral examination, multiple choice test, true-false questions, short answered questions and matching questions. These measurement tools do not intend to evaluate only results, but also learning process as a whole (Coşkun, 2005)

Purpose of the Study

The purpose of this study is to evaluate learning and teaching process in Turkish Course (1st-5th Grades) Curriculum via semi-structured interview and in-class observation conducted with teachers and students. Sub problems of the study are as follows:

1. What are the opinions of primary school teachers about learning and teaching process, prescribed in Turkish Course (1st-5th Grades) Curriculum?
2. According to structured observation results; to what degree can stages of learning and teaching process, prescribed in Turkish Course (1st-5th Grades) Curriculum, be applied?
3. What are the opinions of primary school students about learning and teaching process, prescribed in Turkish Course (1st-5th Grades) Curriculum?

Method

This research is a descriptive study in survey model implemented by benefiting qualitative data collection techniques. Semi-structured interview was conducted with teachers and students in the study. In addition, structured observation was conducted.

Participants

In the present study, semi-structured interview was conducted with 10 teachers (2 teachers from each grade) performing duty in 1st-5th grades in primary education and 12 students (4 students from 4th grade, 2 students from each of other grades). Interview is a mutual and interactive communication process conducted for a predetermined and serious purpose based on asking and answering questions (Yıldırım & Şimşek, 2006). Interview provides in-depth knowledge about a particular research topic or question (Büyüköztürk, 2008).

Seven of the teachers participating in the study are female while 3 of them are male. 4 teachers are graduated from institute, 4 teachers are graduated education faculty graduates, and 2 teachers are graduated from other faculties. Almost all of the teachers (f=9) have professional experiences of more than 10 years. 8 of the teachers took in-service training about curriculum, but 2 of them did not take such training. Structured

observation was made in the classes of 5 teachers (1 teacher from each grade level). Semi-structured interview was made with 12 students of 5 teachers in whose class observation was made. 7 students are female, and 5 students are male.

Data Collection Instruments

In the study, "Teacher Interview Form" and "Student Interview Form" were constituted by utilizing the related literature (Collins, 2005; Coşkun, 2005; Bulut, 2006; Güven, 2008; Karadağ, 2008; Taşkaya, Muşta, 2008; Korkmaz, 2009) in order to determine opinions of teachers and students about learning and teaching process in the curriculum. 5 field experts were asked to evaluate content validity for interview questions based of indicator chart. Some amendments were made in measurement tools in accordance with the suggestions made by the experts. Final version of teacher interview form comprised of 8 open ended questions. One question was asked for each stage of learning ad teaching process, and 3 questions were asked for evaluating the whole process. In student interview form, one question was asked for each stage, and one question was asked for the whole process. That is, 6 open-ended questions were asked in student interview form. Interview forms were applied on 2 teachers and 2 students not included in the sample as a pilot study. It was seen in the pilot study that there was no unclear point in interview questions.

Another measurement tool used in the study is "Observation Form Relating to Turkish Course Learning and Teaching Process." The purpose of this form is to evaluate how learning and teaching process is applied in Turkish courses through observation. "Positive" and "negative" aspects relating to application of each stage of learning and teaching process were noted by the researchers in the observation form. In addition, it was intended to give a mark to teachers in relation to each stage of learning and teaching process. A rubric relating to observation form was prepared in order to ensure objectivity and reliability of marking in the observation form (see Appendix). The rubric was prepared by taking into consideration "relation with the text, application of activities, student participation" aspects of learning and teaching process. According to these aspects, scores between 0 and 5 were given to the teachers. The score 0 was given for the stages never applied in the class, and the score 5 was given for the stages applied best in the class. Following the formation of draft of the observation form, expert opinions were taken; and some corrections were made in the measurement tool according to suggestions of the experts. The number of students in the classes where the observation was made is between 35 and 40. In each class, manner of teaching a text in the course book was observed from beginning to end. Observations lasted for 4-7 hours for each class.

Data Analysis

Sound records obtained from teacher and student interviews were decoded. Then, these decoded texts were evaluated via content analysis method.

Content analysis refers to gathering together similar data within the frame of particular concepts and themes, and interpreting them by arranging them in an understandable way (Yıldırım & Şimşek, 2006). "Sentence" was taken as evaluation unit in the analysis. Opinions of teachers and students were written one under the other in the form of sentences. When sentences with the same meaning are repeated, frequency mark was put in the written sentence. Opinions, whose frequencies were determined, were presented via categorical analysis technique. Stages of learning and teaching process in the curriculum were taken into consideration in categorization of the opinions.

In the Observation Form, applications of teachers in learning and teaching process and problems emerging during these applications were determined via rubric prepared beforehand and notes taken during the observation. Data obtained in this way were classified according to the stages of learning and teaching process; and they were presented with frequency and average values.

Findings

Findings obtained in the study via teacher and student interview forms and observation form were classified and presented according to the stages of learning and teaching process.

Findings Relating to the Preparation Stage

For the question "What kind of problems do you have while applying preparation stage?" in the interview form, 4 teachers mentioned that they do not have any problem relating to the preparation stage, but 6 teachers mentioned the following problems:

- *I have problems with bringing equipments for the activities. (f=4)*
- *Text prediction activities may come to be functionless because students read the text beforehand. (f=2)*
- *If the teacher is prepared, he/she experiences no problem. If not, the subject is broached without attracting the attention of the students. (f=1)*

According to the observation results, teachers do preliminary preparation practices (telling students to open their books, making students ready for listening etc.) which are necessary to be done in the class in "preliminary preparation" which is the first stage of preparation practices. However, it was observed that 2 teachers do not make the activities such as preparing visuals relating to the text and bringing different texts to the class which must be done before the class. Accordingly, observation results support the finding that a problem is experienced in bringing materials relating to the text, mentioned also in teacher interviews.

According to observation results, the following problems are experiences in the mental preparation stage:

- *Teachers could not use time efficiently in the activities in mental preparation stage. While more than enough time was allocated to some*

activities, some activities were taken so short that they could not achieve their targets.

- *No relationship could be established between some activities and the text in this stage.*
- *Some activities relating to this stage given in the guidebook were not applied.*
- *Some teachers (f=2) wrote the meanings of key words on the blackboard without allowing students to think of and discuss key words.*

Observation scores of teachers (out of 5) pertaining to preparation stage in the evaluation based on rubric are showed in Table 2.

Table 2. Observation Scores Relating to Preparation Stage

No	Sub-stage	n*	$\overline{X}$
1.	Preliminary preparation	5	2.80
2.	Mental preparation	5	2.88
2.1	Activating the foreknowledge	5	3.40
2.2	Working with key words	5	3.60
2.3	Recognizing and predicting the text	1	3.00
2.4	Goal setting	3	0.67
2.5	Determining type, method and technique	2	0.50
	Total	5	2.67

* The number of classes in which stage exists in the guide book.

Table 2 indicates that highest success (3.60) is achieved in the stage of "working with key words", and lowest success (0.50) is achieved in the stage of "determining type, method and technique" in preparation practices. Average success in the preparation stage is 2.67.

When students were asked the question "What do you do as preparation for the texts you cover in Turkish courses?" 9 students stated that preparation practices are definitely conducted in the class, 1 student mentioned that they are not conducted every time. Students mentioned the following activities as preliminary preparation practices:

- *I take out my pencil and notebook for the purpose of preparation. (f=3)*
- *Our teacher checks whether or not we bring course books. (f=1)*
- *Students mentioned that the following activities are made as mental preparation practice:*
- *Our teacher asks us questions about the text before starting to read the text. (f=7)*
- *In every text we cover, our teacher tells us something about the text before reading the text. (f=2)*
- *We examine the visuals for the purpose of examination for the text; and we try to find out or predict what is intended to be explained in the text. (f=2)*
- *Our teacher reads something from the beginning, something from the middle and something from the end of the text, and makes us predict the content of the text. (f=2)*

Findings Relating to the Understanding Stage

In the curriculum, understanding stage was phased as visual reading, listening, reading and working with unknown words, examining the text and developing the vocabulary. For the question "What kind of problems do you have in application of the understanding stage?" 3 teachers mentioned that they do not experience any problem. Opinions of teachers stating that they have problems in this stage are as follows:

- *Lack of questions to help understand the text in the stage of examining the text negatively impacts understanding. (f=4)*
- *Students have difficulty in understanding some texts. (f=2)*
- *Students cannot achieve adequate understanding in some texts. (f=2)*
- *I experience problems because students do not have enough reading habits. (f=1)*

According to the observation results, 2 teachers partly apply the activities mentioned in the guidebook in the stages of visual reading and working with unknown words; 3 teachers partly apply the activities mentioned in the guidebook in the stages of listening and reading and examining the text; and teachers have difficulty in focusing the attention of students on text and ensuring student participation.

Observation scores of teachers relating to the understanding stage are showed in Table 3.

Table 3. Observation Scores Relating to Understanding Stage

No	Sub-stage	n*	$\overline{X}$
1.	Visual reading	5	1.60
2.	Listening	5	3.20
3.	Reading	5	3.40
4.	Working with unknown words	5	4.40
5.	Examining the text	5	3.40
6.	Developing the vocabulary	5	3.60
	Total	5	3.27

* The number of classes in which stage exists in the guide book.

Table 3 indicates that highest success (4.4) in understanding practices is achieved in the stage of "working with unknown words" and lowest success (1.6) is achieved in the stage of "visual reading". Average success in preparation stage is 3.27. This indicates that prospective teachers cannot succeed in applying a stage (visual reading) to which they are not accustomed.

For the question "Can you understand the texts given in the course books sufficiently?" 6 students mentioned that they understand texts sufficiently, but 6 students stated that they have difficulty in understanding some texts. Students mentioned the following opinions:

- *I encounter with some unknown words in the texts, but it does not prevent me from understanding the text. (f=3)*
- *I encounter with some unknown words in the texts, so I cannot understand some texts completely. (f=2)*
- *I understand poems more easily. (f=2)*
- *When there are many visuals relating to the text, I understand the text better. (f=1)*

Findings Relating to Stage of Constructing in Mind

In the curriculum, stage of "constructing in mind" was phased as associating with daily life, associating with Kemalism, other courses and sub-disciplines, and research. When teachers are asked the question "What kind of problems do you have while applying the stage of constructing in mind?" 3 teachers gave the answer "I experience no problem while applying this stage". On the other hand, 7 teachers mentioned that they have difficulty in applying the activities given in the guidebook in the stages of "research" and "associating with other courses and sub-disciplines". According to the teachers, problems experienced in this stage are as follows:

- *I have problems with associating with other courses and disciplines. (f=3)*
- *Research practices are difficult to apply as they are too hard for the students. (f=3)*
- *In the research section, students print papers and bring them. (f=2)*
- *Research topics in the guidebooks are not accessible topics. (f=1)*

According to the observation findings relating to sub stages of stage of constructing in mind, some teachers (1 teacher in the stage of associating with daily life; 3 teachers in the stage of associating with other courses and sub disciplines; 2 teachers in the stage of research) never applied the related stage in the class though it was present in the covered text. It was observed that, in the classes where stage of associating with daily life is applied, students are very eager for participating in the lesson and they want to share their experiences with the class. It was seen that teachers applying the stage of associating with other courses and sub disciplines have difficulty in guiding the students while conducting the activities stated in the guidebook. It was observed that 3 teachers applying the research stage do not establish any relationship between research homework they give and the covered text.

Table 4. Observation Scores Relating to the Stage of Constructing in Mind

No	Sub-stage	n*	$\overline{X}$
1.	Associating with daily life	5	3.2
2.	Associating with Kemalism, other courses and sub-disciplines	5	1.2
3.	Research	5	1.6
	Total	5	2.0

* The number of classes in which stage exists in the guide book.

Table 4 shows that even though teachers are relatively successful in the stage of associating with daily life, they are not successful in other stages.

For the question "Can you apply what you learn in Turkish courses in your life? Can you give example?" 10 students gave the answer "Yes, I can use" while 2 students said "I use them from time to time". It was seen that students can give concrete examples in this topic. For instance, 2 students mentioned that, thanks to a text they covered, they have learnt how to do conscious consumption and necessary points to be paid attention during shopping. Accordingly, they pay attention to whether or not the product they buy is closed, and whether or not it is an expired product. Another student mentioned that they covered a text relating to traffic lights, so they know what to do when the light is red, yellow or green as explained in the text, and they pay attention to these lights while crossing.

Findings Relating to the Self-expression Stage

For the question "What kind of problems do you experience while applying self-expression stage?", while 2 teachers mentioned that they do not have any problem in this stage, opinions of teachers stating that they have problems in this topic are as follows:

- *This stage was unnecessarily divided into sub-stages. We cannot apply all of the stages every time. We apply the stages collectively. (f=3)*
- *Since this stage is new for us, we do not know how to apply it. (f=2)*
- *In this stage, students cannot sometimes display the behavior expected from them.(f=2)*
- *We cannot sometimes enable student to speak; we just force him/her to speak. (f=2)*
- *I have so many problems. I think teachers should be trained with regard to this stage. (f=1)*
- *We have sometimes problems with conducting the topics relating to self-expression in the guidebook.(f=1)*

According to observation results relating to self-expression stage, some teachers did not do the activities in the related stage (1 teacher in the stages of activating the foreknowledge-determining topic and speaking, writing and visual presentation; 2 teachers in the stages of goal setting, determining method and techniques, type and presentation format and applying the rules; 3 teachers in the stage of using the vocabulary). Purpose in the activities in this stage is for student to express himself/herself in written, orally or visually. However, it was seen that teachers do not allocate enough time for students to express their ideas.

Table 5. *Observation Scores Relating to Self-expression Stage*

No	Sub-stage	n*	$\overline{X}$
1.	Mental preparation	5	2.05
1.1	Activating the foreknowledge-determining topic	5	2.60
1.2	Goal setting	3	0.67
1.3	Determining methods and techniques	2	0
1.4	Determining type and presentation format	5	1.20
2.	Applying the rules	5	2.20
3.	Speaking, writing and visual presentation	5	2.80
4.	Using the vocabulary	5	1.80
	Total	5	1.86

* The number of classes in which stage exists in the guide book.

According to Table 5, application success is low in all the sub-stages of self-expression practices. It is seen that some sub-stages are never applied or they are applied by very few teachers.

For the question "Can you express your ideas with writing, words or pictures in Turkish courses?" students mentioned the activities they do in speaking, writing and visual presentation practices within learning and teaching process as follows:

a) Speaking

- *Our teacher makes us speak about the text. (f=10)*

b) Writing

- *Our teacher makes us write about the text. (f=9)*
- *The teacher gives some words, and we write (paragraphs or poems) about these words. (f=2)*
- *Our teacher tells us to write something about the text at home. Then, he/she makes us tell what we wrote (f=1)*
- *Our teacher makes us interpret and write about the visuals. (f=1)*

c) Visual Presentation

- *Our teacher makes us draw pictures about the text. (f=7)*
- *Our teacher asks us what we understand from the visuals. (f=3)*
- *Our teacher tells us to visualize what we understand from the text. (f=1)*

Findings Relating to Measurement and Evaluation Stage

For the question, "What kind of problems do you have while applying Measurement and Evaluation stage??" 6 teachers stated that they have time problems while 6 teachers mentioned that abundance of forms leads to paper waste and application difficulty. 3 teachers consider measurement and evaluation as the stage with lowest applicability of Turkish Course (1^{st}-5^{th} Grades) Curriculum. Teachers mentioned the following opinions about the problems they experience while applying measurement and evaluation stage:

- *I cannot apply the forms. (f=6)*
- *I want spend time with students rather than spending time with the forms. (f=4)*
- *Since we did not receive education about this stage, I have some problems with applying it. (f=2)*
- *I do not approve the application of observation forms as I cannot observe the students properly. (f=2)*

- *I apply just post-theme evaluations as I cannot find time. (f=1)*

According to observation results, 3 teachers conducted the activities mentioned in measurement and evaluation stage in the guidebook, but 2 teachers did not apply any of these practices. It was observed that teachers applying the stage just conduct the activities, but they do not use the forms regarding the evaluation of the process. Point averages of teachers in this stage were found 1.2 according to the result of scoring based on rubric.

For the question "What does your teacher take into consideration while giving a mark to you in Turkish courses? Do you think what your teacher does is true?" students gave the following answers:

- *Our teacher makes us fill up self-evaluation and peer evaluation forms in the book. (f=7)*
- *He/she gives marks according to the beauty of italic handwritings. (f=5)*
- *Our teacher sometimes distributes forms to us and asks us to evaluate our friends or ourselves. (f=4)*
- *My teacher takes notes while we are speaking. (f=3)*
- *Our teacher gives us mark according to whether or not we do our homework. (f=2)*
- *Our teacher gives us mark according to participation in class activities. (f=1)*
- *Our teacher makes us fill up a form at the beginning of each theme. (f=1)*

Almost of all of the students (f=9) mentioned that they approve teachers' way of giving marks.

Analyzing the findings relating to measurement and evaluation all together, it is seen that measurement and evaluation is the stage in which teachers have most difficulty in learning and teaching process. Difficulties in applying the measurement tools in crowded classes top the list of problems in this topic. In addition, it is seen that students are not knowledgeable enough in the topic of techniques for evaluating the process in new curriculum. According to the interviews conducted with the students, awareness was created among students in the topic of new measurement approaches.

Findings Relating to the Whole Learning and Teaching Process

For the question "Are students active in Turkish courses? Can you explain it?", while 7 teachers mentioned that students come to be active in this learning and teaching process, 3 teachers stated that students sometimes come to be active, but they are not sometimes active in this learning and teaching process. Teachers mentioning that students come to be active stated that students, never wanting to talk in the class in the past, start to participate in the class in new learning and teaching process and start to make comments on the topics.

For the question "Do you think distribution of activities is balanced according to learning areas (reading, speaking, writing, listening, visual reading, and visual presentation)? If not, which ones are more intense? Which ones should be allocated more space? Can you explain it?" 5 teachers mentioned that there is a balanced distribution of activities according to learning areas. Other teachers mentioned the following opinions with regard to distribution of activities according to learning areas.

- *I think the activities given in the topic of grammar in learning and teaching process are inadequate. (f=4)*
- *Activities are unnecessarily intense in visual reading and presentation. (f=3)*
- *I think there are very few activities relating to writing skill. (f=1)*

For the question "Do you encounter with physical insufficiencies in the school and class while applying learning and teaching process prescribed in the curriculum and course book? Can you explain it?, 6 teachers mentioned that they encounter with physical insufficiencies while 4 teachers stated that they do not encounter with this kind of insufficiencies. Opinions of teachers about this topic are as follows:

- *We do not have projection or computer. (f=4)*
- *Classes are too crowded; it is difficult to walk even between the desks. (f=2)*
- *There is no empty corner in the class in order to apply a drama practice (visual presentation, speaking) relating to the text. (f=1)*
- *We have a television, but it is functionless. (f=1)*

For the question "Do you think Turkish courses are enjoyable or boring? Why?" almost all of the students (f=11) mentioned that Turkish courses are enjoyable and they like expressing themselves by writing or speaking. However, 1 student thinks that Turkish courses are not enjoyable because he/she cannot sometimes give answers to the questions asked by the teacher in the class.

Table 6. Scores Relating to the Stages of Learning and Teaching Process in the Classes Where the Observation Was Made

No	Learning and Teaching Process Stages	n*	$\overline{X}$
1.	Preparation	5	2.67
2.	Understanding	5	3.27
3.	Constructing in mind	5	2.00
4.	Self-expression	5	1.86
5.	Measurement and evaluation	5	1.20
	Total	5	2.20

*.The number of classes in which stage exists in the guide book.

According to Table 6, highest success (3.27) relating to the application of stages of learning and teaching process in the class was achieved in "understanding", but lowest success (1.20) was achieved in "measurement and evaluation". Observation score average is 2.20 for all of the stages in learning and teaching process.

Discussion and Conclusion

According to the results of this study, teachers have difficulty particularly in providing the material to be brought to the class for the purpose of preparation for the course. In also the study conducted by Anılan et al. (2008), teachers mentioned that they have problems like incapability of accessing the materials relating to the preparation and spending much time while preparing materials. Teachers stated that prediction activities come to be functionless as texts are read by students beforehand in the preparation stage.

Observation results indicate that many of the teachers do not apply the stages of "goal setting" and "determining type, method and technique" in preparation

practices. The study conducted by Akyol et al. (2008) reported that teachers do not adequately know and apply the practices relating to determining type, method and technique before the reading. On the other hand, it was determined that students are very conscious in the topic of application of preparation practices.

Evaluating findings relating to understanding stage all together, it is seen that teachers and students find some texts in the book above the student level; stage of examining the text should be supported with questions; teachers cannot apply the activities in understanding stage completely; and they are unsuccessful particularly in visual reading practices.

It is reported in many studies (Coşkun, 2005; Kuru, 2008; Balun, 2008; Odabaşı, 2007) that students are active in visual reading practices, and they like these activities. According to the observation results in the present study, teachers displayed the lowest success in understanding stage in the sub-stage of "visual reading". Even though this is a stage conducted tastefully by students, it is seen that teachers cannot sufficiently recognize this stage included in the curriculum for the first time.

Evaluating the findings relating to the stage of constructing in mind all together, it is seen that there is no important problem in application of the stage of associating with daily life and this stage is considered very interesting and beneficial for the students. On the other hand, it is seen that teachers are not successful enough in the stage of associating with other courses and sub-disciplines, and research.

In the present study, it is seen that some of the activities in self-expression stage are not applied by the teachers; and some problems are experienced in the application, time problem being in the first place. In addition, some teachers stated that they do not have enough information about this stage. On the other hand, based on student opinions, it is understood that, in spite of the problems in application, this stage makes contribution to students' expressing themselves orally, in written and visually.

Evaluating findings relating to measurement and evaluation in the study all together, it is seen that the stage in which teachers have most difficulty in learning and teaching process is measurement and evaluation. Difficulties of applying measurement tools in crowded classes are mentioned to top the list of difficulties in this topic. Findings of the studies conducted by Elvan (2007), Karadağ (2008) and Anılan et al. (2008) correspond to these results.

In addition, it is seen that teachers are not knowledgeable enough in the topic of techniques for evaluating the process in new curriculum. Many previous studies (Özpolat et al, 2007; Yapıcı, 2007; Yiğitoğlu, 2007; Gözütok, et al., 2005; Yaşar et al., 2005; Collins, 2005; Bulut, 2006; Damlapınar, 2008; Rençber, 2008; Tüfekçioğlu & Turgut, 2008; Korkmaz, 2009) report that teachers do not adequately know and use process-based evaluation methods. According to the interviews conducted with the students, awareness was created among students in the topic of new measurement approaches.

One of the basic principles of constructivist approach making up the core of new curriculum is student-centred education (Özer, 2007). In many studies aiming at evaluation of new curriculum (Collins, 2005; Coşkun, 2005; Bulut, 2006; Güven, 2008; Karadağ, 2008; Taşkaya, Muşta, 2008; Korkmaz, 2009) it was concluded that

students are more active compared to the previous system; and there is a more student-centred approach in teaching of new courses. Teachers in this study also mentioned that learning and teaching process in the curriculum makes students more active when compared to the past and this contributes to their developments. In their evaluations relating to the Turkish courses, students frequently used the sentences expressing that they are active in the classes. This indicates that, in spite of many problems in the application, new curriculum constitutes a student-centred education environment.

The most important problem revealed in this study is that teachers do not perceive stages of learning and teaching process as parts of a whole, and they apply them as independent activities. According to the instructions given in guidebooks, teachers do not adequately know or think of what do to and how and why they will do them in the classes. Observation results in this study indicate that teachers never do or superficially do many of the activities in the guidebooks in stages of learning and teaching process. In this case, application success of stages comes to be very low. In addition, since the relationship of applied stages with text cannot be established adequately, Turkish course which is supposed to be a text-centred course (Coşkun, 2005) may come to be a heap of independent activities.

In the present study, teachers mentioned that some texts are above the level of student level, time problem is experienced in some texts, and material problem is experienced in application of some activities. These results support the results of some previously conducted studies. It was concluded in the study conducted by Özoğul (2007) that teachers think that many texts are not suitable for the student level; and it was found out in the study conducted by Coşkun (2005: 421-476) that material problem is experienced from time to time.

One of the important amendments made in Turkish Course (1st-5th Grades) Curriculum is that grammar education is not handled as a separate learning area, but it is considered enough to teach it in other learning areas just via adumbration. In the present study, some teachers stated that non-existence of grammar education in learning and teaching process is a deficiency. In other studies (Coşkun, 2005; Bulut, 2006; Elvan, 2007; Yiğitoğlu, 2007) it was reported that teachers think grammar should be allocated space in the curriculum. Accordingly, it can be said that many of the teachers do not adopt the approach of curriculum in the topic of grammar education. This difference in approaches can be explained as some teachers have difficulty in accepting the situations which are "contrary" to the system they are "accustomed" to. In addition, it can be said that students' dealing with test questions in central examinations as from early ages in the current education system leads to pressure on teachers in the topic of grammar education.

In many studies (Yaman, 2009; Uşun, 2008; Kumral et al., 2008) it is revealed that physical insufficiencies decrease student success and efficiency of the teachers. In the present study, teachers mentioned that class environment is insufficient for some activities in learning and teaching process, and there is a lack of technological instruments. In the study conducted by Güven (2008), primary school teachers stated that insufficiency of physical facilities in the school environment negatively impacts education.

In the present study, students mentioned that Turkish courses are enjoyable, and they can apply what they learn in their daily lives. Studies conducted by

Coşkun (2005), Bulut (2006), Elvan (2007) and Güven (2008) report that education given in Turkish courses via new curriculum has positive impacts on students, and students like Turkish courses.

In the present study, some problems emerging in Turkish course learning and teaching process were determined as a result of teacher and student interviews and observations. None of these problems is unimportant. On the other hand, it should be admitted that a program cannot be perfect by itself. Each curriculum can be applied efficiently only if stakeholders such as teacher, student, parents, school administration, Ministry are in harmony and support one another. Accordingly, problems revealed in the present study cannot be considered as problems just stemming from the curriculum. Necessary updates should be made in the curriculum according to the problems emerging in the application considering the fact that curriculum development is a dynamical and continuous process.

Suggestions

1. Stages of learning and teaching process in the curriculum should be decreased. It will be proper to give education relating to the stages of "goal setting" and "determining type, method and technique", "associating with other courses and sub-disciplines" mentioned as functionless by teachers and relating to the stages of "goal setting", "determining methods and techniques", "determining type and presentation format" in self-expression practices just once in each theme.
2. Texts in the course books should be reviewed; long texts should be shortened; incomprehensible texts should be simplified.
3. The fact that some activities particularly in the preparation stage in learning and teaching process are based on materials difficult to be provided by teachers and students makes these activities inapplicable. This kind of activities should be rearranged by taking into consideration also the crowded classes.
4. One of the weakest stages of learning and teaching process in the curriculum and teacher guidebooks is the stage of "examining the text". In this stage, questions which will enable text to be understood and interpreted better should be allocated space.
5. Text prediction practices should be limited to listening practices not present in student course books.
6. Purpose and usage of measurement and evaluation methods in learning and teaching process in the curriculum and course books should be explained better. In addition, it will be good to decrease the number of these tools considering the problems to emerge in application of these tools in crowded classes.
7. Teachers should learn new teaching approaches and course books introduced by the curriculum with all the details, increase their knowledge levels relating to learning and teaching process prescribed by the curriculum, and develop themselves in the topic of how learning and teaching process stages should be applied in the class environment.
8. It is not a right behaviour for teachers to skip the stage in which they have difficulty rather than solving the problems emerging in application of learning and teaching process and producing alternatives in this topic. Teachers should make use of group studies as an opportunity to discuss these problems and produce solutions to the emerging problems.
9. Teachers should read the text to be covered in the class before coming to the class together with the instructions in the guidebook, and make preliminary preparations rather than reading the text together with the class for the first time.

10. Teachers should adopt new approach brought in by curriculum in the topic of grammar education.

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Appendix

Rubric Relating to Turkish Course Learning and Teaching Process

Score	Qualities
0 (Not done)	Nothing relating to the stage was done in the process.
1 (Very bad)	No relationship was established with the covered text in operation of the stage. Activities relating to this stage given in the course book were applied very unsuccessfully. In this stage, participation of students in the applications could not be ensured.
2 (Bad)	Relationship with the covered text is weak in operation of the stage. Activities relating to this stage given in the course book could not be applied successfully. In this stage, participation of students in the applications was ensured just in a very limited level.
3 (Medium)	The relationship with the covered text could not be established adequately in operation of the stage. Activities relating to this stage given in the course book were applied, but it cannot be said that these activities are adequately successful. In this stage, participation of students in the applications could not be ensured adequately.
4 (Good)	The relationship with the covered text was established in operation of the stage. Activities relating to this stage given in the course book were applied successfully. In this stage, participation of students in the applications was ensured.
5 (Very good)	The relationship with the covered text was established very well in operation of the stage. Activities relating to this stage given in the course book were enriched and applied successfully. In this stage, participation of students in the applications was ensured very efficiently.