

## **Teachers' and Students' Opinions about the Interactive Instructional Environment Designed for Bilingual Turkish Primary School Students in Norway**

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### **Abstract**

Within the context of multicultural education process, bilingual students face the risk of failure due to the problems they experience while using their mother language. One of the groups that have similar problems is Turkish students in Norway; these students also have many problems in learning and using their mother language, Turkish. Some of these problems can be listed as being incompetent in comprehension and self-expression, having limited vocabulary size, inadequate source for language learning and having few class hours for Turkish learning (Belet, 2009). As one of the alternative solution for all these, designing an interactive learning media can be suggested. In this context, the present study contains two phases as designing process of interactive media for the bilingual students' use of mother language and then revealing teachers and students' opinions about the design process and designed interactive media. Before the design process of interactive learning media, a need assessment study on the basis of the teachers' opinions about the problems that the students experience in Turkish learning, their expectations and characteristics was conducted. The data of the research, which was projected, based on the qualitative research method, were collected in the form of survey with open ended questions on need assessment study and design evaluation process, the findings obtained were analyzed and interpreted based on the descriptive analyses method. The results of need assessment indicated that Turkish primary education students in Norway were active in technology use but incompetent in comprehension and self-expression in Turkish, besides they did not have enough vocabulary knowledge. Furthermore, it was obtained that they did not have enough sources for language learning and use, thus they expected to use various learning CDs as alternative solution for these problems. According to the results of needs assessment study, some criteria for the design process were determined and then the interactive Turkish learning media was designed. At the second phase of the study, the teachers and students' opinions about the deigned interactive media were examined. Consequently, it was observed that both the teachers and students generally had positive opinions about interactive learning environment.

**Keywords:** *Interactive learning environment design; bilingual students; language learning and teaching.*

## Introduction

Parallel with the developments in the European Union and multicultural education process which gains importance in international scale, bilingualism and bilingual education concepts have commenced to play important roles in determining the national education policies, at the same time; community language and teaching children with different mother languages have revealed as a fundamental process (Khan, 1983). Additionally, bilingualism is one of the basic problems in education systems of multicultural societies since bilingualism is considered as a negative factor while gaining community language skills and children have different language experience at school and family (Luchtenberg, 2002, 49-50; Martin, 1999, 67). Furthermore, when examined the minority group students with low academic achievement, some studies put forth that such students have limited language use, thus they are not successful at education process (Khan, 1983).

As cited by İleri (2000) from Skutnabb-Kangas and Toukoma's study (1976); not having exact command of both languages influences thinking skill and development of intelligence in a negative way while having competence of one of the languages does not influence thinking and intelligence development. On the other hand, at the top level where both languages are known ingeniously, thinking skills and intelligence are influenced positively. Likewise, one of the current controversies is about how the use of mother language as a medium instruction enables early and rapid transition to a second language beyond decreasing the students' potential skills. Moreover, teaching mother language can be used as a mean to remove the gap between school and home, which disturbs for educational and psychological aspects (Khan, 1983).

Turkish students are one of ethnic groups that have problems related to bilingualism at national and regional level in Norway as one of the European countries. In 2000, out of 580.300 students at compulsory education in Norway, 6.6% (38.600) were enrolled to the courses on minority languages. For most of these students, medium of instruction at their schools are not their mother languages. Preliminary minority languages in Norway are English, Spanish, Turkish, Urdu, Arabic, Croatian, Bosnian, Albanian, Somalian, Tamil (SSB, 2000). Although education in mother language is accepted as a right for students in Norway, within national and regional educational policies, Norwegian teachers have various problems due to bilingualism. In this context, referring to the findings of her study on Turkish students' mother language learning in Norway, Belet (2009) suggested the inclusion of Turkish course to teaching program and supporting Turkish teaching with various sources in order to solve the students' problems in learning Turkish, particularly comprehension and self-expressions owing to limited use of mother language within family. Meanwhile, the researchers in literature stated that teaching mother language is an important way to prevent Turkish students in Norway losing their own cultures. For instance Baker (2000) and Skutnabb-Kangas'a (2000) explained that the mother language loss is little at the early years of education and thus they put forward that in order to hinder students' alienation from their families and to develop their thinking skills as well as community language, technology supported learning media (software for Turkish learning etc) could be developed in addition to elective mother language courses so that teaching mother language and its use out of class could be encouraged.

In technology supported learning environments, students are at the center of learning and their needs, expectations and desires related to teaching process can be taken into consideration. Technology support which aims to annihilate students' negative views, attitudes and reluctance about learning can make learning more effective and thus qualifies in line with individual differences. Since technology supported learning environments provide multidimensional transfer of learning content to students. Thus, it can be claimed that technology-supported learning environments contribute to

development of students' high level thinking skills and facilitate them to learn by comprehension (Renshaw and Taylor, 2000)

Along with technology developments at learning processes and environments, many facilities such as computer, Internet (virtual environments), interactive instructional media have emerged. These systems contain multimedia opportunities such as graphic, sound, text; Picture and the use of these opportunities become widespread day by day (Reeves, 2003). The similarities between learning environment and real life are one of the important factors to embody and make information to be learned meaningful, to enable interaction, and to increase students' achievement (Ringstaff & Kelley, 2002). Appropriate to such an approach, it is essential to apply systematic and realistic understanding while designing learning environments and activities (Seels and Richey, 1994: 4-22)

Learning environments can suit to present requirements of technology with appropriate instructional designs. These requirements can be accomplished with well-rounded team work including pedagogue, education specialist, psychologist and designers. In comparison with traditional applications, technology supported learning develop children's creativity and learning while doing (Resnick, 1998). Thus, developing learning environment and processes within the context of technological requirements guide students to search, observe, review and satisfy curiosity while enable to reach the goal of learning processes by drawing their attention and synthesizing their learning in a certain system.

In technology supported learning environments, the students with different talents and skills can learn different from each other and individually with different learning approaches. The technology, which provides learning environments according to student characteristics, increases learning quality and provides permanence (Winn, 2002). Nowadays most of the students at learning processes have viewpoints based on immediate satisfaction, ever-changing and images. Thus, the learning environments are expected to have interesting content and dynamic structure, open to development and satisfy their expectations (Riley and Prentice, 1999).

Interactive learning facility is one of the commonly used technology facilities in learning processes. Interactive learning media can be classified in terms of functions as computer based and computer supported learning environments, Internet based and Internet supported learning environments, interactive environments, simulation and virtual reality environments. General properties of these environments are to contain multimedia based learning applications and activities. On the other hand, the contents of interactive learning media differ in terms of the intended use. These environments can be listed as for learning purpose, repetition purpose, animation-simulation purpose, game purpose. Interactive learning media can influence learning processes positively as long as they are associated with learning process and content effectively.

Interactive CD's as interactive learning media can appeal to different senses, enable to transfer abstract information to real situations, provide opportunities to students to study on their own pace, increase students' motivation for learning activities, make learning fun and interesting, enable active participation to learning process, support information transfer with multimedia facilities such as graphic, picture, video/sound/animation (Wilson, 1993). In parallel with all these properties, when learning environments designed in interactive learning environments are associated with the characteristics and cultural properties of the target population, it is considered that in line with basic properties such as individualizing learning, increasing learning quality, enabling learning permanence, making learning environments attractive; such environments can be an alternative way for the solution of problems that bilingual Turkish primary education students abroad experience while learning their mother language, Turkish.

### **Aim of the Study**

The aim of the study was to determine teachers' and students' opinions about properties and design of the interactive instructional media designed for bilingual Turkish primary education students. On this purpose, the following research questions were addressed:

1. What are the teachers' opinions about the properties of interactive learning media to be designed to teach mother language to bilingual Turkish primary education students?
2. What are the teachers' and students' opinions about *'Interactive learning media with Turkish learning content'* which was designed to teach mother language to bilingual Turkish primary education students?

### **Method**

The research model of the study, which was conducted through qualitative research design and demographics of the participants, data gathering instruments and data analysis procedures were explained in the following:

### **Research Model**

This study, which aimed to determine the properties of *'Interactive CD with content of Turkish learning'* designed to teach mother language to bilingual Turkish primary education students and the teachers' and students' opinions about these CDs, was designed with survey method. In order to reflect students' and teachers' opinions effectively, descriptive analysis was realized and direct quotations are made by the researchers (Miles and Humerman, 1994; Yıldırım and Şimşek, 2005).

### **Participants**

In this study, out of purposeful sampling methods, critical incident sampling was used to select the participants. As Şimşek and Yıldırım (2005) cited from Patton, the most important indicator addressing to a critical incident or incidents is whether there is a judgment or not as "if it happens here, it will absolutely happen at similar situations" or another indicator "if this group faces a certain problem, other all groups will have this problem". Furthermore, critical incident samplings will be more useful if the researcher does not have enough sources to study on certain number of cases. In this context, critical incident sampling is preferred considering that the students who live abroad and have difficulty in learning their mother language but have different characteristics can use the CD effectively in case the CD satisfy their requirements and contribute to mother language learning as Belet (2009) suggested in her study on interactive instructional CD for bilingual Turkish primary students' mother language learning referring her finding that Turkish students who lived in Norway after immigration in a multicultural environment had comprehension and self-expression problems in Turkish.

In this sense, the participants of the study were 11 teachers and 40 students attending to 2nd, 3rd, 4th, 5th grade (8 second grade students, 11 third grade students, 15 fourth grade students and 6 fifth grade students) at Fjell Multicultural Primary School in Drammen, Norway.

## Data Collection Procedure

In line with the aim of the study, the data collection procedure was carried out at two phases. At the first phase, the teachers' opinions about the properties of Interactive instructional CD, which were suggested by teachers and students in Belet's (2009) study as a solution for the students' problems in comprehension and self-expression in Turkish due to limited vocabulary and ineffective use of mother language, were examined through open-ended questions at 'Survey on Opinions about Properties of Interactive Instructional CD'. During the need assessment, it was a critical to ask teachers open-ended questions to understand key points about students' comprehension and self-expression problems better. In this regard, researchers agreed that open-ended questions would work better than structured simple yes-no questions.

Then, Interactive Instructional CD was prepared in line with these opinions and related studies. At the second phase of the study, the students and teachers' opinions about this designed CD were investigated through open and close-ended questions at "Survey on Teachers' Opinion about Interactive Instructional CD", "Survey on Students' Opinion about Interactive Instructional CD". The properties of data gathering instruments and CD design procedure were explained in detail in the following:

*Survey on Opinions about the Design Properties of Interactive Instructional CD:* This survey contains 5 open-ended questions. Respectively, the first question is regarding the problems teacher mainly experience in the class while teaching Turkish, the second question is about teachers and students' expectations from interactive instructional CD, besides, the third question is about the design components, the fourth question is related to the use of technology. On the other hand, the last question is asked to describe students' in-class performance, properties of mother language use within their age range, their developmental properties, interests, competence and social approaches.

The survey questions are as follows:

- What do you say about the problems mainly experienced in the class while teaching Turkish?
- What do you say about your expectations from interactive instructional CD?
- What do you say about the design components you wish to be included on interactive CD (images, colours, typography, text contents, sounds and etc.)?
- What do you say about the students' use of technology and technology competency?
- What do you say about the students' in-class performance, properties of mother language use within their age range, their developmental properties, interests, competence and social approaches?

The scope and intelligibility of the items in the instrument were checked by two experts in field of Turkish teaching and two experts in the field of learning environment design. (Two assistant professors experienced in the domain of education, particularly in instructional design; two assistant professor experienced in researches and practices on language education and literacy in children). Then, according to field experts' opinions, some parts were changed and sent to the teachers via e-mail. The surveys were recollected within 15 days.

*Design Process of Interactive Instructional CD:* In this process, task analysis related to design components to be used in CD were determined as a result of need assessment, in line with the researchers' studying fields. In that sense, text samples for listening and reading practices, text comprehension activities, and vocabulary game for developing vocabulary knowledge, speaking and writing activities for development of self- expressions were then prepared to involve in CD which were developed in line with students' needs. At this point, considering the function of language for culture

transfer, it was paid attention to involve students' own ethnical cultural values, traditions, life styles and ancestral heroes since it has been accepted that in language teaching at primary education, qualities of culture, value system, viewpoints, expectations and communication styles that students experience play important role. Furthermore, if language teaching gets associated with cultural functionality, it becomes inevitable to create an interactive learning process enjoying students.

Cultural qualities within language and social life and the association of thinking systems influence language teaching and interaction positively, hence the components of this interaction process constitute cultural qualities, conceptual competence, readiness level and knowledge, process strategy (Goodman, 1971; Coady, 1979). In this context, for the designed CD, the texts that emphasized the properties of Turkish culture such as "Karagöz and Hacivat", "Bayramlarımız" were included, additionally, and some samples from world literature (e.g. La fontaine fables) that could draw students' attention were also involved in the content of CD. After deciding on how content and activities would be presented in CD, two experts, one of whom worked with bilingual Turkish primary education abroad, students while the other worked with Turkish primary education students in Turkey, were asked to revise CD and according to their opinions, some related changes were made. Then, the researchers decided on how the selected texts and activities would reflect to design process. Thereupon, the design process of visual and functional qualities of CD were carried out. In this design process, it was decided which visuals, animations and vocalizations would be used for the selected texts, for these "Adobe Photoshop CS 2, Adobe Flash CS 2, Gold Wave and All Sound Recorder programs were used.

After checking over the final version in terms of content and design component for the last time, the designed interactive instructional CD were applied to the participants in Fjell Multicultural Primary School in Drammen, Norway on 17 May 2008. In data collection procedure, CD content which were prepared for all participants were installed on laptops. After that, the students were asked to examine CD (1st session-1 hour) and then they were asked to use it (2nd session – 2 hours) with supervision and cooperation of the researchers. Figure 1 depicts a screenshot of the interactive instructional CD.



Figure 1. Interactive Instructional CD screenshot

*Survey of Students' Opinions about Interactive Instructional CD:* The survey contains totally 10 items; 9 closed-ended and 1 one open-ended items. First seven items are related to design components and interactive environment design, while 8th item is for texts with culture theme in CD, and 9th close-ended item is about the effectiveness of interactive game activity in CD. On the other hand, in 10th open-ended items, participants are asked to evaluate the interactive environment design and write about their extra expectations. After scope and intelligibility of these items were checked by four experts, the final version of the survey was conducted on 17th May 2008.

*Survey of Teachers' Opinions about Interactive Instructional CD:* Teachers' survey consists of 7 items; while 1st item is about learning content, 2.3.4.5th items are about the effectiveness of design components, 6th items is regarding the association of scenarios used in CD with culture, lastly 7th item is for evaluation of vocalization in terms of cultural and instructional aspects. The final version revised again by four experts was given to the participants on the same date, 17th May 2008.

### Data Analysis and Interpretation

Descriptive statistics were used to analyze the quantitative data of the study. After enumerated and scored students and teachers' surveys, the obtained data was analyzed through SPSS package program; the obtained findings were presented as frequency and percentages.

On the other hand, the collected qualitative data was analyzed through descriptive analysis technique. In this context, the qualitative data which was collected at two phases were also analyzed at two steps:

Firstly, a framework on the basis of conceptual and theoretical background of the study was constructed in order to define and arrange themes.

Then, data was revised, selected and arranged under these themes. By describing data and supporting them with quotations, the findings were presented. At this stage, in order to explain, relate and make sense of the findings, the cause effect relation between findings were put forth and the obtained findings were compared with the findings of other studies so that it was aimed to have more qualified interpretations (Yıldırım and Şimşek, 2005). In this sense, two survey forms for teachers' and students' opinions were developed and descriptive index and research comment section were included in these forms. For the reliability of the study, one field expert revised the forms and determined the items which had consensus and dissensus. Then, using Miles & Huberman's (1994:64) Formula, the reliability of the study was ensured as 0.85. The validity study was based on the content validation of 2 field experts (one assistant professors experienced in educational sciences and one assistant professor experienced on language education and literacy) conducted over data's gathered from survey forms.

### **Findings and Interpretations**

The findings of the study were gathered and presented under two themes respectively as "Teachers' Opinions about Design Properties of Interactive Instructional environment and their Reflections to Design Process" according to the findings collected before design process, and "Teacher and Students' Opinions about Interactive Instructional Learning Environment Design" on the basis of the findings collected after design process.

#### **Teachers' Opinions about Design Properties of Interactive Learning Environment and the Reflections of Teachers' Opinions to Design Process**

Primarily, the teachers were asked to explain the problems the students experience regarding Turkish teaching and learning. As a result, most of the teachers emphasized the theme of *"not having enough Turkish sources"*. For instance, one of the teachers, S1 stated that *"there is not enough source when we want to teach the same subject that we have taught in Norwegian, in Turkish class"* In this regard, S2 added that *"it is big shortcoming not to have reading and working books, CDs that students could use"*. Nine of the teachers complained that *"we could not benefit from technology since we do not have technological sources"*. On the other hand, some of the teachers emphasized the theme of *"not having enough class hours"*. In this regard, one of the teachers, S11 reported that *"...our most important problem is that we do not have enough class hours"*. Furthermore, *"having inadequate vocabulary knowledge"* was revealed as another problem based on the teachers' opinions in the need assessment in the study. Regarding this, the teacher S4 explained that *"pronunciation makes vocabulary teaching difficult"*; besides another teacher S6 expressed that *the most important problem is to have little vocabulary knowledge"*. Additionally, the teacher S7 stated that *"for students, it is difficult to learn and make sentence with the newly heard word"*.

Thus, the main themes revealed within the context of the teachers' opinions about the problems they experienced, namely; their needs for technology supported sources, limited class hours and problems related to students' vocabulary knowledge were taken into consideration while designing interactive instructional CD. In this sense, the suggestions for the solution of the problems were offered upon a sample learning activity and modules. Moreover, it was paid attention to design CD as repeatable and appropriate to students' pace. Besides, for the problem of students' inadequate vocabulary knowledge, vocabulary games were designed in CD.

On the other hand, regarding the teachers' opinions about the students' qualities, within the context of *"Students' competence of technology use"* and *"Reasons of students' problem in language use"* themes; it could be claimed that the students could use computer well, they were inclined to use technology, all of the students had laptops and they were interested in computer games and activities. In this respect, related to *"Students' competence of technology use"*, the teacher S1 explained that *"Most of the students are very successful at computer use; they are some students who are better than teachers (although they just attend to 3rd year)"*. Moreover, the teacher S6 stated that *"the students are good at using computer and they are enthusiastic about participating to various computer supported activities"*

Furthermore, the teacher S4 emphasized that *"I realized that the students concentrate at the activities with CD very well"*. On the other hand for the theme of *"Reasons of students' problem in language use"*, most of the teachers put forth the reasons as being bilingual and having inadequate competence in both languages. For instance, the teacher S3 underlined that *"Due to bilingualism, they do not know them adequately, they get confused between them"*, the teacher S7 described the student profile as *"students who have inadequate Turkish language knowledge and need to improve it"*. Regarding this, the teacher S8 added *"They do not have enough Turkish, they have limited vocabulary knowledge and no reading habit, their knowledge and skills are below the average"*. The teacher S11 emphasized that *"It should be take into account that children grow up in an environment which is very different from Turkey and they do not have very rich vocabulary knowledge"*

Concerning previously identified themes such as, *"technology use competency of students"* and *"sources of problems that students faced in language use"* which were used to define the target population, it was found that technology use competencies of the students were very high and they had serious problems in language use. The environment was designed concerning the findings that were merged from the themes. For instance, the learning Turkish oriented interactive environment was developed as simple as possible with reference to the observed bilingualism problems. Moreover, concerning high-level technology use competencies of the students, the environment enriched with visuals in order to make it more attractive and motivating.

With reference to the expectations of the teachers about the interactive environment design, various expectations were gathered within the frame of following themes, which are, *"the content should cover expressions that were proper to the target population"*, *"the content should be amenable to the level of the students"* and *"the content should be applicable for different technology supported environments."* Concerning *"the content should cover expressions that were proper to the target population"* theme, one of the teachers (S6) expressed that the content of interactive Turkish learning environment might cover *"reading comprehension activities, vocabulary enriching activities, vocabulary pronunciation activities, fill in the blank activities, and activities related to idiom definitions."* Another teacher (S2) stated, *"There should be a plenty of examples in the CD and they should be prepared in the form of games"*. Similarly, S10 expressed that *"game oriented and motivating CDs or CDs teaching the concepts might be prepared"*. The teachers also expressed their ideas related to theme which was *"the content should be amenable to the level of the students."* For instance, S11 stated, *"the content should be proper to their experiences, the concepts should be unsophisticated, and there should be short sentences"*. In terms of the levels and profiles of the students, one of the teachers (S2) stated *"... the content should be suitable for all ages and the topics of the year. We should assume the fourth graders in Turkey as second graders here."* Similarly, one of the teachers (S8) stated, *"it should cover applied Turkish teaching methods, and should have rich and multileveled activities that serve for all age groups."* In relation to the theme, which was *"the content should be applicable for different technology supported environments"*, one of the teachers (S2) expressed that *"Since we use smart boards, the content should be suitable for such technologies. For*

*instance, students could fill in the blanks through drag and drop activities when they come to the board”.*

The content and types of the activities that could take place in the interactive environment were also emerged while focusing on the identification of the expectations of the teachers related to the environment. The activities that were expected to take place in the content of the interactive learning environment were primarily related to reading and reading comprehension, however, reading, reading comprehension, enriching the vocabulary knowledge, fill in the blanks in the sentences, texts and tales, games, abridged subjects for younger learners, and using the media in the different technology supported environments were also outstanding among other expected activities in the content of the interactive environment. Regarding the expectations of the teachers, the activities were organized and designed so as to cover expectations of different age groups. In this respect, the content of the environment were design so as to cover fill in the blanks, vocabulary games, question-answer type activities. Moreover, the interactive learning environment was designed as suitable for different technology based environments and as suitable for its out-of-school use by the students. Concerning the frame of the module that was shaped through activities, various texts were also inserted onto the learning environment. In the selection of the texts, the culture and background knowledge of the students (Karagöz and Hacivat, Feast Excitement) and simplified examples of classic literature (The Lion and The Mouse) were used as reading texts. While designing the learning environment, the vocabulary games were organized as attractive, motivating and as vocabulary repertoire enriching activities.

During the process of identification of the quality of the learning environment, the teachers expressed various opinions within the context of previously identified main themes. For instance, with respect to the theme, which was *“the visual characteristics should be suitable for the target population*, while the teacher (S2) expressed *it should be neither too simple nor too complicated*, teacher (S7) stated, *“it should be colourful and attractive, and there should be effective and nice pictures”*. Most of the teachers also highlighted that; there should be plenty of pictures, tales and examples. Concerning the theme that *the audio characteristics of the content should be suitable for the target population*, S2 stated, *“The speed of the audio of the stories should be slower, same as for the tales ...”* and teacher S3 stated, *“There should be oral narrating*. While teacher S6 stated, *“sentences should be heard, stress should be heard, a special attention should be given on pronunciation of the words”* teacher S10 expressed that *“the sounds should be uttered with different intonation”*. In terms of suitability of written texts, while teacher S8 expressed that *“stories, jokes, and sample texts from newspaper might be used ...”* the teacher S10 declared that *“the language should be legible and fluent”*. With respect to the theme, which was *“the visual characteristics should be suitable for the target population*; teacher S2 stated, *“the transitions should be slow”* while teacher S6 highlighted that *“there might be some animations”*. Teacher S8 stated, *“Educational cartoons might be used”*, whereas teacher S10 stated, *“they should attract the children’s interests”*.

Concerning the characteristics of the interactive environment, which was based on the opinions of the participating teachers, the outstanding characteristics of the content should include plenty of visuals, audio narrations, animations in relation with tales, stories and jokes, and fluent and plain sound recordings. With the purpose of fulfilling the above-mentioned expectations of the teachers, two of the texts were selected as animated texts and the other texts were illustrated with pictures while designing the learning environment. Moreover, the visuals and motion videos were supported with high quality sound recordings in order to provide the fluency.

## **The Opinions of Teachers and Students Related to the Design of the Interactive Learning Environment.**

The opinions of teachers and students related to the design of the interactive Turkish learning environment were grouped under two sub-themes, which were "*teachers' opinions related to design*" and "*students' opinions related to design*"

### **Teachers' Opinions Related to Design**

With reference to the use of interactive learning environment in the learning processes, the teachers of Turkish students who enrolled in Fjell Multicultural Primary School were asked to evaluate and express their opinions related to the use of the interactive media. Eleven teachers were asked to evaluate the design of the interactive media along with the characteristics that were identified by the researchers as "*suitability of the content to the target population*", "*suitability of the design properties of the media*", "*suitability of the visuals, sounds and animations*", and "*suitability of the design scenario*". Concerning the obtained data on the subject of "*suitability of the content to the target population*" theme, it was observed that a significant number of the teachers expressed that "*the design of the interactive media is suitable for the target population*". For instance, teacher S11 stated, "*this media is suitable to the status of the students here and I believe that we can use it effectively*". Similarly, teacher S6 expressed that "*I think, the CD that you've prepared is suitable to the target population ...*" Another theme that emerged from the opinions of the teachers related to the suitability of the media to the target population was "*the design of the interactive media is highly effective and attractive*". For instance, teacher S3 expressed that "*the design is effective, attractive and joyful for the students. Being audio is also beneficial. Including activities is informative and I think CD is multidimensional. It is motivating for the students. It is also thought provoking. It breaks the gloominess of the courses and a multi dimensional and constructive resource*". Another theme that emerged from the opinions of the teachers was "*the suitability of the interactive media to the language use of the students*". For instance, teacher S4 opined, "*it is suitable to the language use of the students*". With reference to the content characteristics of the interactive media, teachers stated various opinions such as, it could be enriched by including various activities, it could be used at home as well, and more vocabulary games should be included to its content. The most noticeable characteristics of the interactive media, which was developed for the use of primary school level students is that, the interactive media meets the expectations of the students. In this respect, the needs assessment study that was held with teachers is used effectively with regard to the expectations of the students as well as teachers who are closely acquainted with the students. Since the teachers, who evaluated the design of the interactive media, mentioned some of the characteristics of the design as, effective, multidimensional, motivating, thought provoking, suitable for language use, and meets the expectations indicated that the developed media can fulfill its purpose of design process.

The teachers, who were asked to express their opinions related to the use of design properties of the interactive media, commonly believed that colours, typographic elements, and composition of the media are suitable. With respect to theme that was *suitability of the design properties of the design*, teacher S3 expressed that "*the use of colours is spectacular and this promotes ongoing motivation. The use of colour is well balanced, therefore, it is neither complicated nor eye straining. It is exiting for the students, the writings are not irksome, comprehensible and easily useable by students; compositions are legible and thought provoking...*" Likewise, teacher S11 said, "*the colours of the visuals in the media which was prepared for the first to fourth grades are very important. There should be a harmony between the text and object, the legibility of the text and the length of the text is just suitable for the students here*". The teachers who participated to the analysis study mostly

highlighted that Turkish speaking and writing skills of the student in Fjell Multicultural Primary School were not similar to the students in Turkey, hence, the design characteristics of the interactive media were designed as motivating the perceptions of students, easily perceptible, plain and effective while designing the interactive media. Concerning the opinions of the teachers, it can be claimed that the design characteristics of the media might motivate the perception of students.

The teachers expressed positive opinions related to the *suitability of the visuals, sounds and animations in the design of the media*. For instance, teacher S3 declared, "... *it overlaps with texts, entertaining for the students, easy for students' use and they integrated very well*". Teacher S7 stated, "*Motion properties are attractive enough for the children*", similarly, teacher S10 stated, "... *perfect, display is very important, visual elements are well integrated with the texts*". Teachers also expressed that the interactive media should be enriched with music.

Teachers also expressed highly positive opinions related to the *"suitability of the design scenario"* of the media. One of teachers S1 stated, "*Scenario is in tune with the level of the children and also having a lingual scenario is important in teaching Turkish*"; another teacher S3 stated, it is important in terms of cultural aspect and it is appropriate. Similarly, another teacher S7 expressed, "*the scenarios used in the media are compatible with the culture of the children*".

The teachers' appreciating the scenarios as compatible with the multicultural background of the students is highly important. Since the target users are bilingual and bicultural students, supporting the content with both languages and cultures through familiar visual symbols, verbal expressions, and written texts, that is, associating the content with both languages and cultures might be very effective. Thus, providing such content might offer a learning process, which enables students to associate the content of the media with their own culture as well as with the culture in which they live.

### **Students' Opinions Related to the Design**

The data, which were obtained through closed ended questions, that related to the opinions of the participants about the design were illustrated in Table 1 as frequencies and percentages, whereas, the data which were obtained through open ended questions related to the opinions of the participants about the design were presented with direct quotations.

Table 1. Students' Opinions Related to the Interactive Learning Environment

<b>Opinions related to the environments/media</b>	<b>f</b>	<b>%</b>
The use of multimedia attracted my attention	32	80
The motion videos, audios, visuals and typographic elements in the content made the learning more enjoyable.	27	68
The motion videos, audios, visuals and typographic elements in the content attracted my attention.	24	60
The motion videos, audios, visuals and typographic elements in the content assisted me to learn the subjects better.	26	65
The design of interactive media accommodated me an enjoyable learning	25	63
Being in accordance with the pace and possibility of reviewing the subjects contributed to my learning	25	63
I am not distracted throughout the learning process	16	40
Seeing samples of my own culture in the learning content attracted my attention	24	60
Presentation of the learning content with games attracted my attention	25	63

A great deal of the students expressed that using multimedia facilities (e.g. motion videos, visuals, audios, game interactivities, etc) attracted attention and eased their understanding of the subjects. Similarly, a great deal of students expressed that they found the design of the interactive media as enjoyable when it was considered as a whole and they stated that instructions as well as the quality of pace contributed to their learning. Students highlighted that seeing examples of their own culture in the learning content and use of games in the presentation of the learning content attracted their attention. With reference to the opinions of the students, it was found that only a certain part of the students expressed that they are not distracted; possible reason of the expression of such an opinion might be based on the problems in the physical conditions in the practice setting. However, it can be claimed that, most of the students generally found the media as effective.

Concerning the findings of the data obtained from the open-ended question, it can be claimed that a great deal of students (17 students) expressed positive opinions related to the interactive CD. The most explicit theme emerged from the study is that *"the media is enjoyable and effective"*. A plenty of students highlighted that the presence of games and animations in the content of interactive instructional CD is effective and they affirmed that they liked most the animated characters associated with Karagöz, Hacivat and Bayram heyacanı which were the texts that were presented in the content. For instance, one of the students E37 opined, *"Hacivat was very funny, the lion was slightly pretty, the souvenir story was very nice"*.

Similarly most of the students declared their opinions related to the design of the interactive media under a main theme that *"the effectiveness of the games in the design of interactive media"*. The students (11 students) who acknowledged that they liked games also expressed that they need more games. For instance, while student 19 stated, *"it would be much better if there are more games"* student E4 said, *"There should be a little bit more time for the games"*. Similarly, expressing

*"everything was good, however, it would be much better if there are more questions in the games"*; the student E27 highlighted the importance of the game content.

Some of the students opined that the design of the interactive media should give place for different multimedia facilities such as films, songs and videos along with the games. Regarding the opinions related to the theme that *the need of using different multimedia facilities*, student E29 stated *"... it would be better if there were videos"* whereas student E8 stated, *"I expected to see the videos of each tale"*. It was observed that students enjoyed the interactive media in general and one of the most remarkable aspects is that students mostly liked the animated characters, which were associated with their own culture. It could be regarded that using attention-getting animated characters that associate the culture of the students with the culture that they live in served the purpose of using culturally familiar characters in the interactive media. Similarly, regarding the properties of their ages and based on the opinions of the students it was found that students need interesting vocabulary games while learning Turkish through interactive media. The game based learning environments in primary education level are very effective in terms of motivating students and in terms of directing students into the learning environment.

One of the students E33, highlighting the need of an interactive media expressed that *"... it was very good; I want a CD which is suitable with our subjects"*. Among the students (3 students) who declared their opinions related to the design of interactive media within the theme of *"the contribution of interactive media to the learning process"* the student E19 stated, *"the CD was good and helped me to learn many things"*. Another important finding is that the interactive media was found as a supplementary reference for learning. The students' expressing their opinions on this context is also a sign of the effectiveness of the interactive media.

## **Results and Discussion**

In the world of global and multicultural education, bilingualism and bilingual education as well as mother language education of the children who live in another language environment become a very important and problematic concept. Since, parents who live in another language environment mostly give importance to the education of their children's second languages as they assume that the education of the mother language could be achieved naturally in their family or in their migrant environments (Khan, 1983). What is more, children in such migrant environments have difficulty in using their mother language. Along with these facts, the findings of the studies also revealed that bilingual students might encounter the risk of failures. One of such groups who experience such problems is the Turkish students who live in Norway (Taguma at.al., 2009). However, the related literature highlights that the mother language education contribute to participation to the learning environments, creating a relative equity in the education of multicultural students, gaining higher learning outputs, reducing repetitions in the grade levels, reducing dropout rates of the students, producing socio-culturally beneficial products both for individuals and the multicultural societies, a sustainable impact on reducing the educational costs and developing the critical thinking processes of the children (World Bank Institute, 2005)

The bilingual Turkish students who live in Norway come across with various problems in using and learning their mother language, Turkish. Some of their problems are comprehension problems, lack of self-expression skills, lack of a rich vocabulary knowledge, lack of sources for learning their mother tongue and lack of Turkish courses in their learning curriculums (Belet, 2009). It is considered that one of the alternative solutions for their problems is designing an interactive learning environment. Since, the interactive learning environments provide an important contribution to the education of the individuals through enabling the students find creative solutions for the problems they faced instead of getting the information as passive learners (Anglin, 1995).

The joint points of the conceptual definitions of the education are self-reformation and self-development of individuals, learning through technology and authentic materials and developing a learning motivation. The fundamental relation between teacher and students is changing. The technology endows the students with the control of self-learning. The new technologies enable students to reach new information easily and this process can be controlled by the teachers at the same time (Rakes, Flowers and Cakes, 1999).

The technology supported learning environments provide various ways and opportunities for students to learn and reach the information; hence, it presents a great distinction from the traditional practices (McCorduck, 1994, p. 255). The role of visual and audial media in the educational practices is beyond the question (Bolter, 1996, p. 261). One of the effectual practices of the technology supported learning environments is their interactive design, which contributes the learning process of the students positively.

The findings of the needs analysis study, which was held to identify the needs and current properties of the participants prior to the design of the interactive learning media revealed that the Turkish primary school students in Norway are keen on using technology and enthusiastic to use various interactive CDs as an alternative learning tool, however, they have insufficiency in comprehension of Turkish and self-expression skills, they have inadequate vocabulary repertoire and they don't have sufficient sources for learning and using their mother tongue. Additionally, the preliminary findings revealed that participants expected to see culturally familiar elements and visuals in the content of the designed material.

Butler-Pascoe and Wiburg (2003) declared that the most important aspects of the technology and language learning relation are providing an interactive relation, providing activities, which enable students to express themselves and attain the real qualities of the target population. In fact, Butler-Pascoe (1997) highlighted that the language reflects the culture of individual who speaks that language and provides the learners' own culture to the learners of the language. That is, it can be claimed that the more the interactive media designs provide a content with culturally familiar identities and instruments related to the perceptions of learners, the more interactive relation between students and the interactive media design is occur. Along with these viewpoints, the quality of the inherited culture, ethos, viewpoints, expectations and communication styles of the students is also very important in language learning in the primary school level. The learning of language is related to the quality of the inherited culture, it can be enriched by cultural motives and if it is presented with cultural functionality, it creates a more effective learning process that includes the participation of the students. The association of the quality of the inherited culture and the thought system in relation to communal manner of life affect the language learning process positively, and the elements of such interactive relation process include quality of the culture, conceptual competence, and readiness level and knowledge of process strategy (Coady, 1979; Meichenbaum and Goodman, 1971).

When the opinions of the teachers and students about the interactive media taken into consideration, it is observed that participants in both groups have positive attitudes in general. The findings also revealed that both teachers and students appraised positively the audios in the visual facilities, possibility of repetition of the activities and presenting culturally related content of the media design. In this respect, it can be claimed that if the design process of instructional environment planned through the expectations, needs and the social status of the students, the interactive visual media supports an effective learning competency, (Nunan, 1999).

The content of the interactive media which was designed within the framework of the current study includes four different main activities, such as; learning through texts that were selected with reference to the expectations and characteristics of the students; learning through performing educational animations and entertaining interactions; and learning through pictures, graphs and other visuals. The purpose of including various learning facilities (activities) is to strength the interpretation and perception skills of the students as well as introducing the students a multi dimensional language learning in connection with what they have learned. What is more, regarding the fact that the students might have varying learning strategies, various learning practices and narration techniques were also included into the content. The content was also enriched by attractive vocabulary games related to learning of Turkish. The students' positive attitudes towards the presence of different learning activities (motion videos, visuals and audios, etc.) and the design of the games can be regarded as positive outcomes and solutions of the problems identified during the needs analysis study.

The participants' positive attitudes towards the interactive learning environment seem to support the similar findings in the literature (Clement, 1981; Reeves and Reeves, 1997; Renkl and Atkinson, 2002; Rowland, 1995; Sanders and Morrison-Shetlar, 2001; UNESCO, 2002). The positive reflections of technology use in language learning can be summarized as; learning through experience, providing a learning space, providing motivation, increasing the learner achievement, providing authentic learning environments for the learners, providing intensive and effective interaction, providing individualized learning, providing multi dimensional information sources and making students gain a global viewpoint. The findings of the present study also supports Lee (2000) who stated that technology supported environments provide an individualized learning environment that responds the expectations of the inherited culture of the students who lives in a multidimensional culture that cause a dilemma.

As a conclusion, it can be claimed that all of the participants expressed positive attitudes towards the interactive learning environment, which was designed to solve the Turkish learning problems of multicultural and bilingual Turkish students who live in Norway, and which was designed with reference to the characteristics of the design that was mentioned in the related literature. Particularly, it can be claimed that the design of the interactive media can be more attractive if its content associates with the culturally familiar facilities that exist in both culture. The technological expectations of the learners such as using motion videos, audios, visuals and games in the content engage student attention to the learning process besides cultural expectations of the students.

Concerning the findings of the present study, following suggestions can be offered; in order to assess the effectiveness of the interactive learning environment that was designed to teach Turkish for bilingual students, the accomplishments of the learners in using and learning their mother tongue can be examined before and after the use of interactive CD. Some further developments can be made for the interactive CD so as to use as a long-term learning instrument. What is more, the present study can be replicated with different sample groups and with different data gathering instruments.

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