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【DESCRIPTION】

【Invention Title】

MUSIC-BASED LANGUAGE-LEARNING METHOD, AND LEARNING
DEVICE USING SAME

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【Technical Field】

This disclosure relates to a music-based language learning method and a learning apparatus using the same, and more particularly, to an audiovisual language learning method for generating user-oriented learning multimedia contents where music based on a song composed of lyrics and accompaniment and a language composed of text and pronunciation is matched with an associated image or video, and playing the contents so that a user may watch and listen, and a learning apparatus using the same.

15 【Background Art】

Along with the globalization of modern societies, foreign languages such as English, Japanese and Chinese have important parts of the social life.

Accordingly, languages are educated from early ages, and various methods have been developed for effective language education.

20 For example, when learning a foreign language, learners generally directly register as a member of a foreign language educational institute and attend a foreign language lecture, which however is costly and has limitations in time.



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In addition, an on-line foreign language learning method using Internet records a lecture of a teacher and provides the recorded contents through Internet, but this learning method has deteriorated learning efficiency since learners should be supplied with the recorded contents unilaterally.

5 Recently, as the importance of foreign language education is being emphasized along with the trend of the global era, the development of vocabularies which is the basis of language acquisition dominantly tends to depend on personal endeavors, and so the learning effects for words or idioms was incomplete.

10 In addition, the existing language learning method is still in an offline learning stage which provides an audio file recording pronunciation of a native speaker or videos containing learning procedures. Moreover, a contents-oriented learning method which is directed to learning by repetition of already provided learning contents does not sufficiently satisfy the demand of learners
15 who prefer to learn customized learning contents at any time and anywhere by reconfiguring learning contents as desired.

Moreover, in some learning methods directed to customized learning contents, learning contents designed according to existing contents-oriented learning methods are simply rearranged, which can hardly be considered as
20 user-oriented learning contents directly generated by a learner who participates in the learning and are also not widely used by learners.

【Disclosure】

【Technical Problem】

This disclosure is directed to providing a an audiovisual language learning method for generating user-oriented learning multimedia contents where music based on a song composed of lyrics and accompaniment and a language composed of text and pronunciation is matched with an associated image or video, and playing the contents so that a user may watch and listen, and a learning apparatus using the same.

In addition, the present disclosure is directed to providing a music-based language learning method, which grafts the feature of music, unconsciously learned by repeated listening to the language learning, causes continuous interest to the language learning by integrally providing an associated image and video, and ensures a learner not to be bored by connecting a single song thereto, thereby improving vocabularies which is the basis of language learning, and a learning apparatus using the same.

【Technical Solution】

In one general aspect, a music-based language learning method according to an embodiment of the present disclosure includes: designating, by an input unit of a language learning apparatus, a previously stored word/vocabulary or sentence and accompaniment; generating, by a customized learning generating unit, music-based customized learning contents by matching the word/vocabulary or sentence and the accompaniment designated by the input unit with a text, an associated image or video and pronunciation of a native speaker and storing the music-based customized learning contents; and playing, by a controller, the customized learning contents to output the text

and the associated image or video through a display unit and output the pronunciation of the native speaker and the accompaniment through a speaker.

In another general aspect, a music-based language learning method according to an embodiment of the present disclosure includes: in a case where
5 a learning level is selected by an input unit of a language learning apparatus, outputting, by a controller, a contents list of learning music contents obtained by making a plurality of words/vocabularies combined according to word classes or meanings suitable for the learning level into a song together with accompaniment; in a case where one contents is selected in the contents list by
10 the input unit, outputting, by the controller, a learning function list of the contents; and in a case where one learning function is selected in the learning function list by the input unit, playing, by the controller, the contents in a different way according to the learning function to output a text and an associated image or video through a display unit and output pronunciation of a
15 native speaker and accompaniment through a speaker.

In still another general aspect, there is provided a language learning apparatus using a music-based language learning method, which includes an input unit, a display unit, a speaker, a memory unit and a controller, wherein the memory unit stores texts and pronunciation of a plurality of words/vocabularies,
20 accompaniment, and associated images or videos, wherein the apparatus further comprises a customized learning generating unit for matching a word/vocabulary and accompaniment of the memory unit selected by the input unit with an image or video to generate music-based word/vocabulary customized learning contents and storing the music-based word/vocabulary

customized learning contents in the memory unit, and wherein the controller plays the word/vocabulary customized learning contents stored in the memory unit, audibly outputs the pronunciation and accompaniment of the word/vocabulary customized learning contents through the speaker, and outputs the text and the image or video through the display unit.

【Advantageous Effects】

According to the above, when a learner selects music and word/vocabulary, customized learning contents where the music and the word/vocabulary or an associated image are matched is generated, and so the learner may practice pronunciation by using the customized learning contents, memorize words/vocabularies by means of music and game, and learn the language as if singing a single song whose lyrics is written by collecting words/vocabularies designated by the learner according to accompaniment (background music).

In addition, continuous interest on the language learning is induced by providing music or associated image and video integrated with the language learning, and the language learning is connected to a single song so that the learner does not feel bored, thereby improving vocabularies which is the basis of language learning.

【Description of Drawings】

The above and other aspects, features and advantages of the disclosed exemplary embodiments will be more apparent from the following detailed

description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a diagram showing a language learning apparatus according to an embodiment of the present disclosure;

Fig. 2 is a diagram showing learning information stored in a learning
5 information storage area of a memory unit employed in the language learning apparatus of Fig. 1;

Fig. 3 is a flowchart for illustrating a language learning method according to a first embodiment of the present disclosure;

Fig. 4 is a flowchart for illustrating a language learning method
10 according to a second embodiment of the present disclosure;

Figs. 5 and 6 are curve graphs by a tune-extracting program applied to the present disclosure;

Figs. 7 to 9 show images output to a display unit in a generating operation of Fig. 3; and

15 Figs. 10 to 19 show images output from the display unit at every stage of Fig. 4.

[Detailed Description of Main Elements]

10: language learning apparatus	11: controller
12: input unit	13: display unit
14: voice processing unit	15: communication unit
16: memory unit	17: customized learning generating unit
18: evaluating unit	MIC: microphone
SP: speaker	

【Best Mode】

Hereinafter, the configuration and operations of an embodiment of the present disclosure will be described with reference to the accompanying drawings.

Fig. 1 is a diagram showing a language learning apparatus according to an embodiment of the present disclosure.

As shown in Fig. 1, the language learning apparatus 10 includes a controller 11, an input unit 12, a display unit 13, a voice processing unit 14, a communication unit 15, a memory unit 16, a customized learning generating unit 17 and an evaluating unit 18.

The controller 11 controls the overall operations for performing the language learning according to the present disclosure.

The memory unit 16 is composed of a program storage area for storing a program performing language learning, a temporary storage area for temporarily storing data generated while the program is executing, and a learning information storage area for storing learning information required for the language learning.

In addition, the learning contents data stored in the memory unit 16 may be classified into the case where the learning apparatus is independently operated so that the contents database is expanded asynchronously (the contents database is configured in the learning apparatus, and if this is changed, the learner upgrades or updates the contents database), and the case where a contents database server is provided so that the contents database is expanded

synchronously under a communicatable environment (the contents database is configured as a server, and the contents database is configured in real time under a communication environment so that only available contents are downloaded to the learning apparatus), which may have different configurations according to the language learning providing method.

The program storage area of the memory unit 16 stores a tune-extracting program to extract tunes (itches) of the pronunciation of the native speaker and the learner and display them as curve graphs.

Figs. 5 and 6 are for examples curve graphs extracted by different tune-extracting programs when English words such as polite, current, severe, and remote are pronounced, and it can be understood that different tune-extracting programs draw the same curve graph.

The evaluating unit 18 compares the curve graphs of the native speaker and the learner drawn by the tune-extracting program and grades a point according to the similarity between the curve graphs.

In other words, in a case where the learner repeats the pronunciation of the native speaker output through the speaker SP (the voice data provided from the memory unit) with a predetermined interval and records and stores the repeated pronunciation, the tune-extracting program extracts the tune, volume and playing time information of the stored learner pronunciation to generate an articulation curve graph, where the tune is represented by height, the volume is represented by thickness, and the playing time is represented by length in the articulation curve graph so that the difference between the pronunciation of the native speaker and the pronunciation of the learner may be visually compared.

In addition, the evaluating unit 18 calculates a point by evaluating the similarity between both articulation curve graphs.

In addition, in a case where a learner learns words included in the contents and performs a test game associated with the learned words, the evaluating unit 18 calculates a point according to the result of the test game, namely the number of correct or incorrect answers.

The input unit 12 has a plurality of keys, a mouse or a virtual key input system using a screen supporting touch interface as the input means for controlling operations of the language learning apparatus 10, and data obtained when the learner presses a key, clicks the mouse or manipulates the touch interface is output to the controller 11.

The display unit 13 is a liquid crystal display (LCD), a screen supporting touch interface or a CRT monitor and displays various language learning information as texts, images and videos under the control of the controller 11.

The voice processing unit 14 is connected to a microphone MIC and a speaker SP, and processes analog voice input through the microphone MIC into a PCM, EVRC or MP3 format and outputs the processed voice to the controller 11, and the controller 11 stores the processed voice as recording information 16e of the memory unit 16.

In addition, the voice processing unit 14 converts the voice data (pronunciation) or song file stored in the memory unit 16 and outputs a sound through the speaker SP.

The communication unit 15 accesses Internet under the control of the controller 11 and downwards and updates learning information provided by a

learning information server (not shown), for example data in relation to a word e-dictionary 16a, a sentence e-dictionary 16b and a contents function information 16c shown in Fig. 2.

The customized learning generating unit 17 generates music-based customized learning contents by matching the music and word/vocabulary selected by the learner with an associated image or video, and stores the music-based customized learning contents as customized learning contents information 16d in the memory unit 16.

The voice data of the word/vocabulary designated by the user may have various learner combinations according to the length (a one-beat type, a two-beat type or the like) and the tune (a basic type, a modified type a, a modified type b or the like) of the voice according to the word/vocabulary. Therefore, even though the same accompaniment is used, different music-based customized learning contents may be generated according to the lyrics (word/vocabulary).

The language learning apparatus 10 may be implemented as a learner-dedicated terminal or a personal terminal (a cellular phone such as a smart phone, various portable devices supporting voice and video, or the like), and the display unit 13 is preferably configured as a screen supporting the touch interface to serve the functions of the display unit 13 and the input unit 12 together.

The operations of the language learning apparatus 10 are classified into a user learning mode which is a main menu and a recommended learning mode which is a quick menu. In the user learning mode, the learner may select

word/vocabulary and accompaniment and learn a language by using music-based customized learning contents newly generated by matching the selected word/vocabulary and accompaniment with an associated image or video. In the recommended learning mode, the learner may learn a language by outputting the contents information (learning contents provided by a learning information provider, or customized learning contents already generated and stored by the learner in the user learning mode) stored in the language learning apparatus 10, differently according to the learning function.

Fig. 2 is a diagram showing learning information stored in a learning information storage area of the memory unit of Fig. 1.

As shown in Fig. 2, a word e-dictionary 16a, a sentence e-dictionary 16b, a contents function information 16c, a customized learning contents information 16d, and a recording information 16e are stored in the learning information storage area of the memory unit 16.

The word e-dictionary 16a is a dedicated dictionary of the language learning apparatus 10, and words may be searched through the word e-dictionary 16a. The searched words are stored as history data.

The word e-dictionary 16a stores a plurality of words, their multimedia files, and a lot of accompaniment music in various genres to be matched with the files.

In more detail, the word e-dictionary 16a includes music information 16aa, text information 16ab, voice information 16ac, image information 16ad or the like.

The music information 16aa is information about a plurality of songs

composed of accompaniment (background music) or melody (hereinafter, referred to as accompaniment) and is configured to have a playing length of about 3 minutes per a song, which is a familiar music length to general music users.

5 The text information 16ab includes a word and its meaning, and the image information 16ac includes a picture file representing the meaning of the word and is stored to correspond to the word of the text information 16ab.

 The voice information 16ad includes a voice file of pronunciation corresponding to the word and its meaning and is stored to correspond to the
10 word of the text information 16ab.

 The sentence e-dictionary 16b may search sentences and make a sentence list, and stores various sentences classified into idiom, adage and conversation, multimedia files of the sentences, and a lot of accompaniment music of various genres to be matched with these files.

15 In more detail, the sentence e-dictionary 16b includes music information 16ba, text information 16bb, voice information 16bc, image information 16bd or the like.

 The music information 16ba is information about a plurality of songs composed of accompaniment and is configured to have a playing length of
20 about 3 minutes per a song, which is a familiar music length to general music users.

 The text information 16bb includes a sentence (idiom, adage, conversation) and its translation, and the image information 16bc includes a meaning of the sentence and a picture file representing the meaning and is

stored to correspond to the sentence of the text information 16bb.

The voice information 16bd includes a voice file of pronunciation corresponding to the sentence and its meaning and is stored to correspond to the sentence of the text information 16bb.

5 In the recommended learning mode, the contents function information 16c selected by the learner for language learning is previously stored according to each learning level and includes a video function 16ca, a sectional practice function 16cb, a pronunciation practice function 16cc, a multimedia book function 16cd, a word list function 16ce, an example sentence function 16cf,
10 and a game function 16cg.

The contents is composed of learning music contents where a plurality of words/vocabularies combined according to word classes or meanings are composed into a song together with accompaniment. The basic format of the song allows a learner to sing a word/vocabulary and its meanings repeatedly,
15 and a time interval between the word/vocabulary and the meaning is 0.5 to 0.7 second.

The video function 16ca is a function of outputting a video file where the image representing each word included in the contents is matched with typography (a text image with a visual effect).

20 The sectional practice function 16cb is a function of dividing the contents into predetermined sections (for example, 8 sections) and outputting a previously recorded song (voice data configured as contents database) of a native speaker, which allows the learner to repeat a predetermined designated section, and a single song with a length of about 3 minutes may be divided into

small units and learned by the learner.

The pronunciation practice function 16cc is a function of dividing the words/vocabularies included in the contents into predetermined words/vocabularies and then outputting the pronunciation of the native speaker (voice data provided from the memory unit) together with an image. The learner repeats the pronunciation of the native speaker according to the rhythm. Therefore, the learner may easily imitate the tone of the native speaker such as an accent of the word, feel visual agreement through the image containing the meaning of the word/vocabulary displayed in the display unit 13, and learn numerous words within a short time with concentration and interest.

The multimedia book function 16cd is a function of displaying the word/vocabulary included in the contents and an associated image on a screen of the display unit together with the voice file. The language learning apparatus 10 responds to output a voice or shift an image whenever the screen is touched.

The word list function 16ce is a function of displaying a headword of the word/vocabulary included in the contents and corresponding information (etymology, derivative, synonym, antonym, idiom or the like) in the form of an e-book.

The example sentence function 16cf is a function of outputting a sentence composed of headwords of the words/vocabularies included in the contents. The sentence may be matched with the accompaniment and the pronunciation of the native speaker (voice data provided from the memory unit) and then learned by the learner, or only sentences may be collected and

learned.

The game contents 16cg is a function of displaying correct and incorrect answers of the language included in the contents and allowing the learner to select one of the correct and incorrect answers. The evaluating unit 18
5 calculates a point according to the number of correct and incorrect answers.

The customized learning contents information 16d stores the music-based customized learning contents, generated by matching the word/vocabulary or sentence and the accompaniment designated by the learner with an associated image at the customized learning generating unit 17, as
10 multimedia contents.

The recording information 16e stores the pronunciation of the learner in the form of voice data when the learner repeats the customized learning contents generated by the learner or the learning contents already provided.

Fig. 3 is a flowchart for illustrating a language learning method
15 according to a first embodiment of the present disclosure.

As shown in Fig. 3, after executing the language learning apparatus 10, a learner selects a mode to be learned through the input unit 12 in a mode selection window output to the display unit 13 (S302).

For example, in a case where the learner wants to designate and learn
20 word/vocabulary and accompaniment, the user selects the user learning mode. If the user wants to learn by using the already stored contents (completed learning contents provided by a learning information provider or the customized learning contents already generated and stored by the learner in the user learning mode), the learner selects the recommended learning mode.

If the user learning mode is selected, a word/vocabulary or sentence is designated. First, if a text of words/vocabularies or sentences is output to the display unit 13, the learner may select desired words/vocabularies or sentences through the input unit 12 to generate a list, and determine a title of the list to designate words or sentences. Second, the learner may search words or sentences through the word e-dictionary 16a or the sentence e-dictionary 16b to generate a list and determine a title of the list in order to designate words/vocabularies or sentences (S304).

After that, the input unit 12 designates accompaniment music to be used for the song after the words/vocabularies or sentences are designated (S306).

The customized learning generating unit 17 generates music-based customized learning contents by matching the accompaniment and word, designated when the learner selects a word option, with pronunciation and image. If the learner selects a word+meaning option, the customized learning generating unit 17 generates music-based customized learning contents by matching the designated accompaniment and word with the meaning, pronunciation and image, and stores the music-based customized learning contents with the list title as the customized learning contents information 16d in the memory unit 16 (S308).

In addition, in a case where the learner selects a sentence option, the customized learning generating unit 17 generates music-based customized learning contents by matching the designated accompaniment and sentence with the pronunciation and image. If the learner selects a sentence+translation option, the customized learning generating unit 17 generates music-based

customized learning contents by matching the designated accompaniment and sentence with the translation, pronunciation and image and stores the music-based customized learning contents with the list title as the customized learning contents information 16d in the memory unit 16.

5 After that, if the learner selects the execution of the customized learning contents through the input unit 12, the music-based customized learning contents is played through the speaker SP and the display unit 13 under the control of the controller 11 (S310).

10 In the customized learning contents generated by the selection of the word option is played, an image of the corresponding word is displayed on the display unit 13 together with a text at intervals of for example 1.2 second or 2.4 second (according to whether the length of the word is one beat or two beats) (see Figs. 7 to 9), and the pronunciation of the word is output through the speaker SP according to the designated accompaniment, for example at
15 intervals of for example 1.2 second or 2.4 second.

 In addition, in a case where the customized learning contents generated by the selection of the word+meaning option is output, an image of the corresponding word is displayed on the display unit 13 together with a text at intervals of for example 1.2 second or 2.4 second (according to whether the
20 length of the word is one beat or two beats), and the pronunciation of the word and the voice of the meaning are output through the speaker SP according to the designated accompaniment, for example at intervals of for example 0.6 second or 1.2 second.

 In addition, in a case where the customized learning contents generated

by the selection of the sentence option is output, an image of the corresponding sentence is displayed on the display unit 13 together with a text, and the pronunciation of the sentence is output through the speaker SP according to the designated accompaniment.

5 The interval of the output between a specific sentence and the next sentence is obtained by adding for example 2 seconds to the length (time) of the specific sentence.

 The typography function (a text image with a visual effect) may be applied to the sentence. Here, tune information and volume information may
10 be extracted from the pronunciation of the sentence. The extracted information is reflected on the text to generate a curve in the text where the height of the text varies according to the height of the tune and the thickness of the text varies according to the degree of volume, and then the text may be output to the display unit 13.

15 In addition, in a case where the customized learning contents generated by the selection of the sentence+translation option is output, an image of the corresponding sentence is output to the display unit 13 together with the text, and the pronunciation of the sentence and the voice of the translation are output through the speaker SP according to the designated accompaniment.

20 By doing so, the learner experiences 3-Tier (three-dimensional or three-way) learning while hearing the pronunciation of the native speaker or the meaning (translation) with the ears together with the accompaniment, watching the text and associated image with the eyes, and repeating with the lip.

 In other words, the learner performs voluntary and self-initiated

language learning as if singing a song.

The pronunciation of the learner is input through the microphone MIC, recorded as the recording information 16e in the memory unit 16 through the voice processing unit 14, and stored as voice data (S312).

5 The controller 11 outputs the recorded and stored pronunciation of the learner through the speaker SP together with the pronunciation of the native speaker to audibly compare the difference of both pronunciations (S314).

10 In a case where the pronunciation of a word or sentence is stored, the tune-extracting program extracts the tune, volume, playing time information of the pronunciation of the native speaker and the pronunciation of the learner to generate an articulation curve graph. In the articulation curve graph, the tune represented by height, the volume represented by thickness, and the playing time represented by length are output to the display unit 13 so that the difference between the pronunciation of the native speaker and the
15 pronunciation of the learner may be visibly compared (S316).

The evaluating unit 18 calculates a point by comparing the similarity between the articulation curve graphs of the native speaker and the learner.

20 According to the language learning method of the first embodiment as described above, by generating the music-based customized learning contents where the word/vocabulary and accompaniment designated by the learner are matched with an image, the words and their meanings may be learned (memorized) like a song.

Fig. 4 is a flowchart for illustrating a language learning method according to a second embodiment of the present disclosure.

In a case where the recommended learning mode is selected in S302, a learning level selection window is output to the display unit 13 (see Fig. 10), and the learner selects his learning level through the input unit 12 (S402).

If the structure of the contents database is determined, the learning level
5 may be classified according to a learner (primary schoolchild, junior high school student, high school student, TOEIC/TOEFL) or the degree of learning (beginning level, intermediate level, high level).

A plurality of contents lists corresponding to the selected learning level is output to the display unit 18, and the learner selects a single contents through
10 the input unit 12 (S404).

The contents is composed of multimedia contents where a plurality of words/vocabularies combined according to word classes or meanings are composed into a song together with accompaniment. The basic format of the song allows a learner to sing a word/vocabulary and its meaning repeatedly,
15 and a time interval between the word/vocabulary and the meaning is 0.5 to 0.7 second.

After the contents is selected, a learning function list corresponding to the contents is output to the display unit 13 (see Fig. 11), and the learner selects a function for learning the selected contents through the input unit 12 (S406).

20 The function of learning the contents includes a video, a sectional practice, a pronunciation practice, a multimedia book, a word list, an example sentence, and a game.

If one of the contents learning functions is selected, the selected learning function contents is played through the speaker SP and the display unit

13 differently depending on the learning function (S408).

In a case where the video function 16ca is selected, a video file where an image or typography representing each word/vocabulary is matched with the contents is output (see Fig. 12).

5 In a case where the sectional practice function 16cb is selected, the contents is divided into predetermined sections (for example, 8 sections), and a previously recorded song (voice data configured as contents database) of a native speaker is output to the speaker SP together with accompaniment, and an image and text representing each word is output to the display unit 13 (see
10 Fig. 13).

The learner learns while listening to the song of the native speaker and repeating it. In order to prevent any confusion in learning, the text color output to the display unit 13 is differently set before the song starts, when the song of the native speaker is generated, and when the user repeats the song.

15 In a case where the pronunciation practice function 16cc is selected, the contents is divided into predetermined units, and the pronunciation of the native speaker (voice data provided from the memory unit) is output. At this time, a word option, a word+meaning option, a no-accompaniment option, a screen-off option or the like may be selected.

20 In a case where the word/vocabulary is selected, an associated image of the word/vocabulary is output to the display unit 13 together with the text at a predetermined interval (for example, 2.4 second), and the accompaniment and the pronunciation of the native speaker are output to the speaker SP at a predetermined interval (for example, 2.4 second).

In a case where the word/vocabulary+meaning is selected, an associated image of the word/vocabulary is output to the display unit 13 together with the text at a predetermined interval (for example, 2.4 second) (see Fig. 14), and the pronunciation of the native speaker and the voice file of the meaning are output to the speaker SP according to the accompaniment at a predetermined interval (for example, 1.2 second).

The learner learns (memorizes) the word and its meaning by repeating the pronunciation of the native speaker and the voice file of the meaning according to the accompaniment.

In a case where the no-accompaniment is selected, the voice file is output to the speaker SP without the accompaniment, and the image and the text are output to the display unit 13.

In a case where the screen-off is selected, only the voice file and the accompaniment are output through the speaker SP.

In a case where the multimedia book function 16cd is selected, every cut of the associated image of the word/vocabulary included in the contents is output to the display unit 13 one by one, and accordingly the pronunciation of the native speaker is output to the speaker SP.

By the selection of the learner, words may be output by each cut, or the same word may be repeatedly output.

The multimedia book function 16cd has options such as native speaker pronunciation, song, binding, information, and all view.

In a case where the native speaker pronunciation is selected, whenever the learner turns over each cut, the pronunciation of the native speaker of the

corresponding word is output through the speaker SP.

In a case where the song is selected, whenever each cut of the screen of the display unit is turned over, a song of the corresponding word/vocabulary is output through the speaker SP.

5 If the binding is selected, no sound is output even though the learner touches the screen of the display unit 13.

 If the information is selected, an information window of the corresponding word/vocabulary (etymology, derivative, synonym, antonym, idiom or the like) is output to the display unit 13 (see Figs. 15 and 16).

10 If the all view is selected, a screen shot corresponding to the word/vocabulary of the contents is output to the display unit (see Fig. 17).

 If the all view is selected, a desired word/vocabulary may be found fast by scrolling the screen.

 If the word list function 16ce is selected, the headword of the
15 word/vocabulary contained in the contents and corresponding information (etymology, derivative, synonym, antonym, idiom or the like) are output through the display unit 13 and the speaker SP (see Fig. 18).

 The learner may check only uncertain words/vocabularies so that only headwords of the checked words/vocabularies and corresponding information
20 are output through the display unit 13 and the speaker SP.

 In a case where the example sentence function 16cf is selected, a sentence composed by the headwords of the checked words/vocabularies included in the contents is output through the display unit 13 and the speaker SP.

The learner may check only sentences to be learned so that only the checked sentences and their translations are output through the display unit 13 and the speaker SP.

By using the example sentence function 16cf, the accompaniment and
5 the pronunciation of the native speaker (voice data provided from the memory unit) may be matched and learned, or only sentences may be collected and learned.

In a case where the game function 16cg is selected, both correct and incorrect answers of the language included in the contents are displayed to the
10 display unit 13 simultaneously (see Fig. 19).

The learner clicks an answer he thinks correct according to beats. After the game ends, the evaluating unit 18 calculates a point according to the number of correct and incorrect answers.

After that, the learner repeats the pronunciation of the native speaker
15 according to the selected learning function. At this time, the pronunciation of the learner or its meaning (translation) are input through the microphone MIC, recorded as the recording information 16e in the memory unit 16 through the voice processing unit 14, and stored as voice data (S410).

If the word/vocabulary is selected as an option in the pronunciation
20 practice function 16cc, the accompaniment and the pronunciation of the native speaker are output through the speaker SP at a predetermined interval (for example, 2.4). At this time, the learner repeats the pronunciation after the pronunciation of the native speaker at a predetermined time interval (for example, 1.2), and this is input through the microphone MIC and stored in the

recording information 16e of the memory unit 16.

The controller 11 outputs the recorded and stored pronunciation of the learner through the speaker SP together with the pronunciation of the native speaker, so that the difference in pronunciation may be audibly compared
5 (S412).

In the tune-extracting program, the tune, volume, playing time information of the pronunciation of the native speaker and the pronunciation of the learner are extracted to generate an articulation curve graph. In the articulation curve graph, the tune represented by height, the volume
10 represented by thickness, and the playing time represented by length are output to the display unit 13 so that the difference between the pronunciation of the native speaker and the pronunciation of the learner may be visibly compared (S414).

In addition, the evaluating unit 18 calculates a point by comparing the
15 similarity between the articulation curve graphs of the native speaker and the learner (S416).

According to the language learning method of the second embodiment as described above, the contents composed of multimedia contents where a plurality of words/vocabularies combined according to word classes or
20 meanings stored in the language learning apparatus 10 are composed into a song together with accompaniment, namely the pronunciation of the word/vocabulary or sentence and its meaning (or translation), may be learned (memorized) like a song by using various learning functions.

According to the present disclosure, in a case where a learner selects

music and word/vocabulary, customized learning contents where the music and word/vocabulary are matched with an associated image is generated. The customized learning contents becomes multimedia contents like a kind of music video by using the music designated by the learner as accompaniment, using the word/vocabulary designated by the user as lyrics, and converting the associated image into a video. Therefore, the learner practices pronunciation by using the multimedia contents, memorizes (learns) the word/vocabulary through the music and the game, and enjoys a song whose lyrics is written by himself. Accordingly, the present disclosure may continuous induce the interest on the language learning, prevent the learner from feeling bored, and improve word/vocabulary which is the basis of the language learning.

While the exemplary embodiments have been shown and described, it will be understood by those skilled in the art that various changes in form and details may be made thereto without departing from the spirit and scope of this disclosure as defined by the appended claims.

【CLAIMS】

【Claim 1】

A music-based language learning method, comprising:

designating, by an input unit of a language learning apparatus, a
5 previously stored word/vocabulary or sentence and accompaniment;

generating, by a customized learning generating unit, music-based
customized learning contents by matching the word/vocabulary or sentence and
the accompaniment designated by the input unit with a text, an associated
image or video and pronunciation of a native speaker and storing the music-
10 based customized learning contents; and

playing, by a controller, the customized learning contents to output the
text and the associated image or video through a display unit and output the
pronunciation of the native speaker and the accompaniment through a speaker.

【Claim 2】

The music-based language learning method according to claim 1,
wherein, in a case where the text of the sentence is output to the display unit,
the controller applies typography to the sentence to change thickness of the text
according to the degree of volume and adjust height of the text according to the
20 height of tune so that the sentence becomes lifelike.

【Claim 3】

A music-based language learning method, comprising:

in a case where a learning level is selected by an input unit of a language learning apparatus, outputting, by a controller, a contents list of learning music contents obtained by making a plurality of words/vocabularies combined according to word classes or meanings suitable for the learning level
5 into a song together with accompaniment;

in a case where one contents is selected in the contents list by the input unit, outputting, by the controller, a learning function list of the contents; and

in a case where one learning function is selected in the learning function list by the input unit, playing, by the controller, the contents in a different way
10 according to the learning function to output a text and an associated image or video through a display unit and output pronunciation of a native speaker and accompaniment through a speaker.

【Claim 4】

15 The music-based language learning method according to claim 3, wherein the learning functions include:

a video function for outputting a video file where an image representing each word/vocabulary included in the contents is matched with typography;

a sectional practice function for dividing the contents into predetermined
20 sections and outputting a song of a native speaker together with accompaniment through the speaker;

a pronunciation practice function for dividing the contents into predetermined units and outputting the pronunciation of the native speaker through the speaker;

a multimedia book function for outputting every single cut of images of the words/vocabularies included in the contents one by one through display unit and outputting the corresponding pronunciation of the native speaker through the speaker;

5 a word list function for outputting headwords of the words/vocabularies included in the contents and the corresponding information (etymology, derivative, synonym, antonym, idiom or the like) through the display unit and the speaker;

10 an example sentence function for outputting a sentence composed of headwords of the words/vocabularies included in the contents through the display unit and the speaker; and

a game function for outputting correct and incorrect answers of the words/vocabularies included in the contents through the display unit simultaneously.

15

【Claim 5】

The music-based language learning method according to claim 1 or 3, further comprising:

20 storing pronunciation of the learner in a memory unit in a case where the learner repeats the pronunciation of the native speaker; and

outputting the stored pronunciation of the learner together with the pronunciation of the native speaker through the speaker.

【Claim 6】

The music-based language learning method according to claim 5, wherein the controller extracts tune, volume and playing time information according to the pronunciation of the native speaker and the pronunciation of the learner and outputs the information to the display unit as curve graphs.

5

【Claim 7】

The music-based language learning method according to claim 6, wherein the controller outputs the curve graphs of the native speaker and the learner to the display unit so that the tune is represented by height, the volume is represented by thickness, and the playing time is represented by length in the articulation curve graphs.

10

【Claim 8】

The music-based language learning method according to claim 7, wherein an evaluating unit compares the curve graphs of the native speaker and the learner and calculates a point according to the similarity between the curve graphs.

15

【Claim 9】

The music-based language learning method according to claim 1 or 3, wherein, after the pronunciation of the word or sentence is output through the speaker, the meaning of the word or sentence is output through the speaker after 0.5 to 0.7 second.

20

【Claim 10】

A language learning apparatus using a music-based language learning method, which comprises an input unit, a display unit, a speaker, a memory unit
5 and a controller,

wherein the memory unit stores texts and pronunciation of a plurality of words/vocabularies, accompaniment, and associated images or videos,

wherein the apparatus further comprises a customized learning generating unit for matching a word/vocabulary and accompaniment of the
10 memory unit selected by the input unit with an image or video to generate music-based word/vocabulary customized learning contents and storing the music-based word/vocabulary customized learning contents in the memory unit, and

wherein the controller plays the word/vocabulary customized learning
15 contents stored in the memory unit, audibly outputs the pronunciation and accompaniment of the word/vocabulary customized learning contents through the speaker, and outputs the text and the image or video through the display unit.

20 **【Claim 11】**

The music-based language learning apparatus using a music-based language learning method according to claim 10,

wherein the memory unit further stores texts and pronunciation of a plurality of sentences and translation, accompaniment and associated images

or videos, and the customized learning generating unit matches the sentence and accompaniment of the memory unit selected by the input unit with an image or video to generate music-based sentence customized learning contents and stores the music-based sentence customized learning contents in the memory unit, and

wherein the controller plays the sentence customized learning contents stored in the memory unit, audibly outputs the pronunciation and accompaniment of the sentence customized learning contents through the speaker, and outputs the text and the image or video through the display unit.

【Claim 12】

The music-based language learning apparatus using a music-based language learning method according to claim 11, wherein the memory unit further stores learning music contents obtained by making a plurality of words/vocabularies combined according to word classes or meanings into a song together with accompaniment according to a learning level, and the controller outputs the contents through the speaker in a different way according to each learning function.

【Claim 13】

The music-based language learning apparatus using a music-based language learning method according to any one of claims 10 to 12,

wherein the memory unit further stores a tune-extracting program for extracting tune, volume and playing time information of the pronunciation of the

native speaker and the pronunciation of the learner and outputting the information through the display unit as curve graphs, and

wherein the apparatus further comprises an evaluating unit for comparing the curve graphs of the native speaker and the learner from each other and evaluating a point according to the similarity between the curve graphs.

【Claim 14】

The music-based language learning apparatus using a music-based language learning method according to claim 13, wherein the controller outputs the curve graphs through the display unit so that the tune is represented by height, the volume is represented by thickness, and the playing time is represented by length in articulation curve graphs.

【Claim 15】

The music-based language learning apparatus using a music-based language learning method according to claim 10, wherein the display unit includes a screen which supports a touch interface to serve as the input unit, and the language learning apparatus is a dedicated terminal for each learner.