

Analysis of Bilingual Teaching Reform Measures of “Digital Signal Processing”

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Abstract: In many fields such as remote sensing, communication, control, radar, power electronics, artificial intelligence, biomedicine, etc., “digital signal processing technology” will be involved. In order to better promote the healthy development of digital signal processing technology related industries and cultivate more and more professionals in this field, it is of great practical significance to actively explore the bilingual teaching reform measures of “digital signal processing”. This paper discusses the problems existing in the bilingual teaching and the reform measures of bilingual teaching of “digital signal processing”, hoping to improve the teaching quality of “digital signal processing” course in colleges and universities in China through its bilingual teaching reform.

Keywords: Digital Signal Processing; Bilingual Teaching; Problem Analysis; Reform Measures

“Digital signal processing” is a basic course of electronic information specialty in colleges and universities, covering a rich knowledge system. At present, “digital signal processing” course related knowledge has been widely used in the field of computer technology, electronic information, communication fields and so on. With the continuous development of digital signal processing technology, the relevant staff also put forward higher requirements, such as certain reading ability, expression ability, writing ability of English, in order to better adapt to the field of digital signal processing in the new era. To explore the bilingual teaching reform measures of “digital signal processing” is to better improve students’ bilingual ability and output more high-quality professionals in digital signal processing field for the society.

1. Problems in bilingual teaching of “digital signal processing”

1.1 The curriculum is unreasonable

At present, in the bilingual teaching of “digital signal processing”, there are some problems in the course, mainly in these aspects: on the one hand, in the bilingual teaching of “digital signal processing”, some colleges and universities set the class hours are very limited, and teachers do not have enough time for bilingual teaching. In this case, the process of the teacher’s explanation will appear very “in a hurry”, and students will encounter greater difficulties in understanding. Moreover, the knowledge system of “digital signal processing” course itself is relatively abstract and logical. If teachers do not have enough class hours to carry out bilingual teaching, it is difficult to achieve ideal teaching results; on the other hand, in the bilingual teaching of “digital signal processing”, some colleges and universities set up bilingual teaching mainly reflected in the theoretical knowledge explanation. For the practical teaching part, teachers seldom carry out bilingual teaching. From the integrity of “digital signal processing” course^[1], theory and practice complement each other, and the application of bilingual in practice teaching is also very important.

1.2 The teaching system is not perfect

In the bilingual teaching of “digital signal processing”, the teaching system is not perfect mainly in these aspects: First, in the bilingual teaching of “digital signal processing”, some teachers integrate the bilingual teaching content, mainly around the teaching material, rarely involving some extension content outside the teaching material. For such bilingual teaching content, it is difficult for students to establish life contact and feel the influence and significance of “digital signal processing” knowledge on real life; second, in the bilingual teaching of “digital signal processing”, some teachers carry out bilingual teaching mode is relatively traditional, mainly teachers explain, students record and listen. In this process, students are exposed to a single learning situation, mainly feel the impact from the text. These problems are related to teachers’ e-teaching ability. Some teachers are not good at carrying out bilingual teaching through information-based teaching tools. In such a teaching mode, students’ desire for exploration and knowledge will be relatively poor, and it is difficult to listen to bilingual teaching seriously.

1.3 The assessment method is not perfect

In the traditional “digital signal processing” course assessment, the more prominent problem is: On the one hand, in the “digital signal processing” course assessment, some colleges and universities do not involve bilingual examination content. That is to say, although students usually accept bilingual teaching, there is no corresponding mechanism for testing, which is one of the reasons for the low quality of bilingual teaching of “digital signal processing” in some colleges and universities; on the other hand, in the course assessment of “digital signal processing”, some colleges and universities have not combined the characteristics of bilingual teaching^[2] to innovate some diversified assessment methods. For example, bilingual assessment is only involved in theoretical knowledge assessment of “digital signal processing” course in most colleges and universities, in the form of written examination. Such a single assessment method can’t well test students’ reading ability and expression ability of English, and does not reflect the purpose of bilingual teaching.

2. Bilingual teaching reform measures of “digital signal processing”

2.1 Reasonable setting up of the course system of “digital signal processing”

In the process of promoting the bilingual teaching reform of “digital signal processing” in colleges and universities, the key is to set up a reasonable course system. Specifically speaking, on the one hand, in the bilingual teaching of “digital signal processing”, colleges and universities should combine the actual needs of bilingual teaching, reset the class hours, and allow teachers carry out systematic bilingual teaching with plenty of time. In addition, in each bilingual teaching, teachers should allocate the proportion of Chinese and English reasonably. They should not only devote themselves to improving students’ English ability, but also make students master professional knowledge. In order to better enrich bilingual teaching, teachers can also use the form of “micro class” to put preview and review outside the classroom to improve the efficiency of bilingual teaching in the classroom; on the other hand, in the bilingual teaching of “digital signal processing”^[3], bilingual teaching in colleges and universities should not only be reflected in the explanation of theoretical knowledge, but also run through the part of practical teaching. For example, in practical teaching, the assessment and activities designed by teachers can encourage students to express their views and interact actively in the form of “combining Chinese and English”.

2.2 Improving the teaching system of “digital signal processing”

How to further improve the teaching system of “digital signal processing”? Specifically speaking, firstly, in the bilingual teaching of “digital signal processing”, the bilingual teaching content integrated by teachers should not only focus on the textbook, but also scientifically integrate some expanded content outside the textbook. For example, the latest application of digital signal processing technology in the field of computer technology, electronic information and communication. In this way, students can establish a good life contact, fully perceive the value of “digital signal processing” knowledge to real life, which is conducive to stimulate students’ learning enthusiasm; second, in the bilingual teaching of “digital signal processing”, teachers should keep pace with the times to optimize the bilingual teaching mode. For example, teachers can make good use of multimedia teaching tools^[4], such as combined text, pictures, video and other materials as well as presentation of “application of discrete-time signal”, “application of DFT in voice and image signal”, “filter design case”, etc., which can bring students more intuitive impact and help them better understand the key and difficult knowledge in bilingual teaching.

2.3 Improve the assessment system of digital signal processing

A perfect assessment system can better mobilize students' learning enthusiasm. In order to improve the assessment system of "digital signal processing" in colleges and universities, we can improve it from these aspects: On the one hand, in the assessment of "digital signal processing" course, colleges and universities should not engage in formalism of bilingual teaching, and bilingual assessment should be integrated into the assessment content. Moreover, the assessment contents involved should be comprehensive and systematic, including both theoretical and practical contents. Especially for the assessment of English, we should reduce the single memory and copy, and increase some specific application scenarios related to English. On the other hand, in the assessment of digital signal processing, colleges and universities should combine the characteristics of bilingual teaching and innovate some diversified assessment methods^[5]. For example, the practical assessment of bilingual teaching of digital signal processing can be carried out in the form of situational simulation and case analysis. In the specific situation simulation and case analysis, students' bilingual ability can be better reflected. Moreover, in this way, students' awareness of bilingual learning will be stronger, which can truly achieve the result of "assessment promoting progress".

3. Conclusion

In conclusion, through the analysis of the problems existing in the bilingual teaching of "digital signal processing" course, we can better carry out the bilingual teaching reform and improve the bilingual teaching quality of "digital signal processing" course. It should be noted that in the actual situation, the bilingual teaching problems in different universities may be different. For educators in colleges and universities, it is necessary to implement targeted bilingual teaching reform measures of "digital signal processing" in combination with the actual situation of the colleges and universities. It is not allowed to copy blindly and deviate from reality, which will affect students' learning enthusiasm.

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