Training Program of Problem Solving Skills and Multiple Intelligences for Developing Soft Skills of Higher Education Students

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Abstract: The ability to solve problems is a necessary condition for students to succeed in education. How to develop students' thinking and problem-solving skills to successfully control the modern world, excel in challenging careers, and deal with increasingly complex information. According to Gardner's multiple intelligences theory, different people have different intellectual components, which can provide educators with a framework and theoretical guidance, so that they can better meet the needs of different types of learners in each classroom and improve students' problem-solving skills.

Keywords: Problem Solving Skills; Multiple Intelligences; Student Training

1. Introduction

As higher education becomes more and more competitive, complex and technical, students will need to acquire the skills to think and solve problems in order to successfully control the modern world. Problem solving is a core concept of educational reform. It requires schools to put more emphasis on skills in all disciplines. This is also a core concept in the reform, that is, how teachers teach and what students should learn.

2. Research framework

Problem solving is a method involving multiple abilities, such as observation, understanding, logical reasoning, synthesis and evaluation, to solve a basic or difficult problem. Problem solving skills can be divided into three core components: problem-solving participation, self assurance and organized thinking.

2.1 Participation in problem solving

The ability to face unexpected obstacles in an orderly manner using acceptable methods is called problem-solving participation. The ability to solve problems is a soft ability, which means that it is a personality characteristic, not a skill acquired in school, at work or through technical training. Although your inner talent for problem solving is something you were born with or developed early in life, that doesn't mean you can't improve it. This is a talent that can be developed and cultivated over time to improve your problem-solving ability (Coomassie, 2022).

2.2 Multi intelligence theory

According to Gardner, humans have a lot of intelligence. These knowledge and intelligence can be cultivated and strengthened, or ignored and weakened. He believes there are nine intelligences (tophat, 2021). Language intelligence refers to the sensitivity to the sound, meaning and rhythm of words, as well as the development of good language ability. Mathematical logical intelligence refers to the ability to think abstractly and cognitively, as well as the ability to recognize logical or digital patterns. Musical wisdom is defined as the ability to create and appreciate rhythm, pitch and timbre in music. Visual spatial intelligence refers to the ability to think according to images and visual effects, as well as the ability to imagine accurately and abstractly. If it is difficult for teachers to reach students through standard language or logic education methods, the concept of multiple intelligences proposes various ways to communicate disciplines to help successful learning:

body experience (body kinesthetic intelligence). The multiple intelligences hypothesis is likely to enable students to re participate in learning. When many intelligences are used to help students learn effectively, every student has a chance to succeed.

3. The role of schools in developing problem-solving skills

3.1 Definition of terms

3.1.1 Problem solving skills

Problem solving refers to cognitive, emotional and behavioral processes, as well as a set of special skills used by people to solve challenges in daily life.

In this study, problem-solving skills will clearly show how people respond to stressful life events that will change their lives. These skills are succumbing to helping people deal with life problems more effectively in order to obtain better psychological adaptation, more career satisfaction and greater overall happiness.

3.1.2 Participation in problem solving

This reflects actively approaching and participating in all aspects of the problem-solving process, such as reflecting on their feelings, collecting relevant information, thinking about different alternative strategies, and considering the consequences of different actions.

3.1.3 Self-assurance

This reflects a belief in their success in dealing with difficult and stressful problems, a confidence in their ability to solve problems, and a positive tendency to organize and integrate ideas, put ideas together and formulate successful solutions.

3.1.4 Visual intelligence

This area is also known as spatial intelligence. It deals with spatial judgment and visualization with the eyes of the brain.

Problem solving is a process of personal cognition and innovation. It helps a person formulate effective and useful strategies to solve their daily problems. The four activities related to this component are: problem definition, development of alternative solutions, decision-making and work implementation. Each of the four steps plays an important role in developing an effective response to the problem situation. Ahvan proposed six problem-solving styles in his research, including creative problem-solving, self-confidence, method, helplessness, control and avoidance styles. The first three ways to solve problems are called constructive, and the last three ways to solve problems are called counterproductive.

In order to successfully educate all students, teachers should be aware of students' individual differences; Personal learning style and multiple intellectual characteristics. In schools, logic intelligence and language intelligence are often emphasized in teaching. Students who are more developed in other aspects of intelligence are often ignored. It is very important to recognize and understand the general situation of students' intelligence, and it is of great significance to teaching. For example, if a student has achieved limited success in language and mathematical intelligence, he can achieve more success by using some other intelligence. The method of multiple intelligences provides useful suggestions for providing a more reasonable and practical method of school education. In addition, since the strengths and weaknesses of intelligence are not static, they may be improved through different educational experiences. Therefore, the theory and method of multiple intelligences support the continuous evaluation of intelligence from the early stage.

Austin (2016) believes that (MI) multiple intelligences theory is a new educational method, which may completely change the way we provide teaching and the way students receive information. The theory is reliable and supported by many respected experts in psychology and pedagogy. Effectively integrate it into education so that we will be able to use it to benefit students.

Table 1 Summary of the Student Respondents' Assessment on their Multiple Intelligence

Factors	Mean	Qualitative Description	Interpretation	Rank
1. Naturalistic Intelligence	2.53	Often	High Level	6
2. Musical Intelligence	2.57	Often	High Level	3
3. Logical Intelligence	2.54	Often	High Level	5
4. Existential Intelligence	2.51	Often	High Level	7
5. Interpersonal Intelligence	2.56	Often	High Level	4
6. Kinesthetic Intelligence	2.54	Often	High Level	5
7. Verbal Intelligence	2.58	Often	High Level	2
8. Intrapersonal Intelligence	2.59	Often	High Level	1
9. Visual Intelligence	2.54	Often	High Level	5
Over-all Mean	**2.55**	**Often**	**High Level**	

Legend: 3.51-4.00 Always/Very High Level; 2.51-3.50 Often/High Level; 1.51-2.50 Seldom/Low Level; 1.00-1.50 Not at all/Very Low Level

In general, student respondents showed a high level of multiple intelligence (2.55) according to their own assessment. It can be noted that individual intelligence (2.59) obtained the highest evaluation from the students themselves, indicating a high level of intelligence. Followed by language intelligence (2.58), musical intelligence (2.57), interpersonal intelligence (2.56), logical intelligence, kinesthetic intelligence and visual intelligence are all 2.54, natural intelligence (2.53), and existential intelligence (2.51) is the lowest evaluation level, but the results show that it is also high and level. It can be inferred that respondents rated themselves highly in multiple intelligences and all aspects.

Table 2 Relationship Between the Student Respondents' Problem Solving Skills and Multiple Intelligences

Students' Problem Solving Skills	Students' Multiple Intelligences	Computed r	Sig	Decision on Ho	Interpretation
1. Problem Solving Engagement	Naturalistic	0.43	0.00	Rejected	Significant
	Musical	0.31	0.00	Rejected	Significant
	Logical	-0.03	0.78	Accepted	Not Significant
	Existential	0.18	0.06	Accepted	Not Significant
	Interpersonal	0.21	0.03	Rejected	Significant
	Kinesthetic	0.33	0.00	Rejected	Significant
	Verbal	0.14	0.15	Accepted	Not Significant
	Intrapersonal	0.30	0.00	Rejected	Significant
	Visual	0.18	0.07	Accepted	Not Significant
2. Self-Assurance	Naturalistic	0.27	0.00	Rejected	Significant

	Musical	0.19	0.10	Accepted	Not Significant
	Logical	0.27	0.00	Rejected	Significant
	Existential	0.37	0.00	Rejected	Significant
	Interpersonal	0.13	0.17	Accepted	Not Significant
	Kinesthetic	0.08	0.44	Accepted	Not Significant
	Verbal	0.19	0.14	Accepted	Not Significant
	Intrapersonal	0.07	0.49	Accepted	Not Significant
	Visual	0.04	0.70	Accepted	Not Significant
3. Methodical Thinking	Naturalistic	0.12	0.23	Accepted	Not Significant
	Musical	0.10	0.29	Accepted	Not Significant
	Logical	0.13	0.02	Rejected	Significant
	Existential	0.23	0.02	Rejected	Significant
	Interpersonal	0.12	0.23	Accepted	Not Significant
	Kinesthetic	0.05	0.53	Accepted	Not Significant
	Verbal	0.11	0.27	Accepted	Not Significant
	Intrapersonal	0.13	0.19	Accepted	Not Significant
	Visual	0.25	0.01	Rejected	Significant
	Average	**0.25**	**0.01**	**Rejected**	**Significant**

Table 2 shows that students' problem-solving ability is highly positively correlated with their multiple intelligences. This means that students' problem-solving ability will be positively affected by multiple intelligences. This may mean that the higher the students' multiple intelligence, the better their problem-solving ability.

4. Conclusions and recommendations

This study found that students' problem-solving ability was highly positively correlated with their multiple intelligences. Consultants generally believe that improving problem-solving skills and acceptance of multiple intelligences give students better learning opportunities. In this study, the researchers proposed a soft skill program focusing on problem solving and multiple intelligences. Combine these structures into a training program, including teaching students to effectively solve problems and make decisions, deepening their understanding of multiple knowledge, and strengthening their confidence in problem solving, so as to predict an all-round development of individuals. Based on the conclusions of this study, the following recommendations are as follows:

The development of students' problem-solving skills and multiple intelligences must be integrated into the process of teaching and learning, so that students can develop these advantages. Teachers should consider students' individual differences and create an environment conducive to all intellectual development.

Teachers must identify students' intelligence in order to determine the most effective teaching methods so that students with different intelligence can learn in the classroom. Needless to say, students' intelligence will affect the way they solve problems.

Howard Gardner's multiple intelligences scale (MII) is an effective and reliable test. It evaluates students' multiple intelligences because these evaluations have been evaluated by most researchers and experts. Therefore, it is suggested that teachers require students to learn, so as to understand students' multiple intelligences, so as to better insight and understand them.

The content provided by the theory of multiple intelligences is not only of great significance in theory, but also of great practical significance to teaching practice. Teachers should consider students' Multiple Intelligences in the teaching process and encourage students to use different intelligences in the learning process. In order to improve teaching quality, both teachers and learners should consider their different multiple intelligences. With regard to their career, we should celebrate the multidimensional nature of learners, and all intellectual abilities can be improved.

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