Curriculum
of
Gifted and Talented Education
for
Teacher Candidates

Project Title:

Integration of Experiential Learning and Virtual Reality on Gifted Education VR4GIFTED (We Are for Gifted)

Programme: Erasmus+

Action: Strategic Partnerships

Call: 2018

Project reference No: 2018-1-TR01-KA203-058805

Partners: Canakkale Onsekiz Mart University (Turkey), University of Macedonia (Greece), Spoleczna Akademia Nauk (Poland), Fundacion Universitaria San Antonio (Spain), NARA Edu Tech. (Turkey), APEC (Turkey).

Authors

Ilke Evin Gencel,

Adam K. Gogacz,

Beatriz Guillén Velasco,

Cigdem Sahin Taskin,

Enrique Mena Garcia,

Hanife Esen Aygun,

Ioannis Agaliotis,

José Ortí Martínez,

Lefkothea Kartasidou,

MªCarmen Fernández Vidal,

Zafer Karadayi


Erasmus+


VR 4 GIFTED


TÜRKİYE ULUSAL AJANSI
TURKISH NATIONAL AGENCY


Nara
Nara EdTech


APEC
advanced project education consulting


UNIVERSITY
OF MACEDONIA


SPOŁECZNA AKADEMIA NAUK
UNIVERSITY OF SOCIAL SCIENCES


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Introduction

This project aimed to develop a new reference curriculum based on experiential learning theory and Virtual Reality resources to be used in Teacher Training with a particular focus on inclusive education of gifted and talented children.

Under the project, Canakkale Onsekiz March University (with the support of APEC), Fundacion Universitaria San Antonio, Spoleczna Akademia Nauk and University Of Macedonia prepared national knowledge papers which clearly shows the current situation on gifted education in Turkey, Greece, Poland and Spain. It has shown that there is a strong need for an innovative educational program in gifted and talented education in teacher education.

Eight experts from four different partner countries confirmed the need for such a training program. Thus, an elective course program was developed for teacher training institutions. This program is based on the experiential learning cycle based on pragmatist and naturalist philosophy. Foundational scholars of experiential learning are William James, Kurt Lewin, Carl Rogers, Carl Jung, John Dewey, Jean Piaget, Lev Viyogotsky, Paulo Freire.

According to experiential learning cycle, learning is the process whereby knowledge is created through the transformation of experience (Kolb, 1984). Thus, at first a concrete experience should take place. (Concrete Experience), then reflective observation occurs when the learner consciously reflects back on that experience (Reflective Observation), after that, the learner conceptualizes a model or a process, a way of thinking or a theory of what is observed (abstract conceptualization), finally the learner plans to test that model for a forthcoming experience (active experimentation). This process is summarized by Kolb as the Figure 1 below.

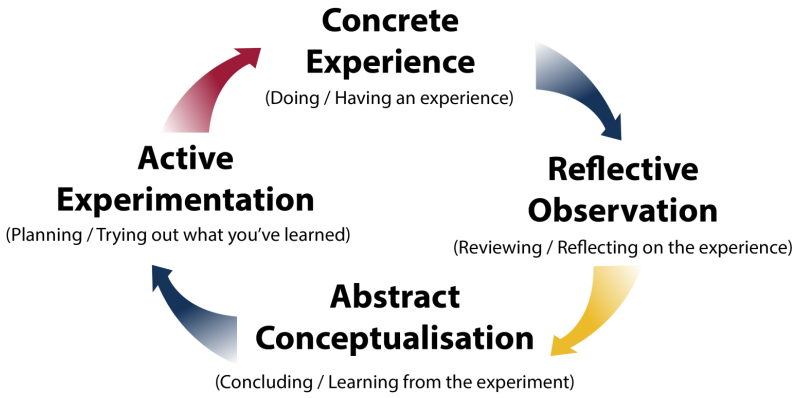

Figure 1. Experiential Learning Cycle

It can be said that "experience" is the initiating factor in learning, and knowledge results from the combination of grasping and transforming “experience” (Kolb, 1984, p.41). In this process, learning style describes the unique ways that individuals spiral through the learning cycle based on their preference for the four different learning modes (Kolb, 2007). Through experiential learning cycle, individuals who have different type of learning styles can benefit from the learning process effectively.

In this process, VR resources can enable us to show prospective teachers different possible situations in a row, without waiting for them to occur. In addition prospective teachers will be able to find themselves in those situations and live a likely experience thanks to the VR resources.

Previously, VR resources have not been used in such undergraduate training programs. In this regard, the use of VR resources in education is innovative and provides important advantages. Above all, VR resources, which use three-dimensional visual objects, will make training more interesting and it increases the motivation. In this context,

it will also affect the imagination and creativity of the learners in a positive way. In this curriculum, it has been suggested that through experiential learning cycle, VR resources should be used at the first and the last phase especially. Previously, VR resources have not been used in such undergraduate training programs. In this regard, the use of VR resources in education is innovative and provides important advantages. Above all, VR resources, which use three-dimensional visual objects, will make training more interesting and it increases the motivation. In this context, it will also affect the imagination and creativity of the learners in a positive way.

This training program aims to enable prospective teachers to experience a concrete situation / problem that provide information about gifted and talented education with VR resources. Then, in the second stage, reflections will be realized. In the third stage, it will be ensured to gain the information planned for that course session through various methods, techniques, resources and teacher guidance. In the last stage, the teacher candidate will have the second chance to use the information and the strategies he / she learned in the virtual environment.

In this training program, gifted and talented education and classroom management strategies that can be applied to the prospective teachers are designed as Sessions which are determined under four main modules. The process is designed to suit the VR resources to be developed and the experiential learning cycle. VR resources will include scenarios referred to possible situations prospective teachers might encounter when teaching gifted students in their classrooms. VR resources will be available on the project website www.4gifted.com. This curriculum can be applied to an elective course for 28 hours in teacher training institutions.

In addition to the measurement and evaluation techniques to be applied during the program, it is recommended that the following questions be asked to the teacher

candidates at the beginning and at the end of the program in order to obtain data on the impact of the program.

- I can identify gifted and talented students in my classroom.
- I know the characteristics of gifted and talented students.
- I am aware of the types of gifted and talented education.
- I am aware of the advantages and disadvantages of gifted and talented students.
- I know how to guide gifted and talented students in my classroom for their future education.
- I know how to organize my lessons for my gifted and talented students
- I know how to implement effectively strategies for gifted and talented students emotionally in my classroom.
- I know how to implement effectively strategies for gifted and talented students socially in my classroom.
- I know how to implement effectively cognitive strategies for gifted and talented students in my classroom.
- I can teach effectively gifted and talented students as well as other students.

Gifted and Talented Education for Teacher Candidates

Aims:

Primary school teaching undergraduates, who are the prospective teachers in mainstream education institutions, will gain competences in their domains as in the following.:

- What are the characteristics of gifted and talented students.

- How to enrich curriculum to meet the needs of gifted and talented students.

- How to include artistic educational practice such as the use of educational games, paintings, drawings, theater, literature, and other practices that develop imagination, fantasy and creativity of gifted and talented students.

- How to motivate gifted and talented students.

- How to implement inclusive education strategies for gifted and talented students in regular classrooms.

- How to engage gifted and talented children with learning environment during repetition drills which some other students need.

- How to benefit from blended learning facilities to challenge gifted and talented children during the course delivery.

- How to develop social skills.

- How to develop all-encompassing learning environment.

MODUL I.

CHARACTERISTICS OF GIFTED AND TALENTED STUDENTS

Objectives:

Session 1:

The students will:

Explain theoretical bias of gifted and talented children.

Name the areas of being gifted and talented according to multiple intelligences.

Understand the differences between terms: gifted" and "talented", be able to assign proper term to proper discipline.

Session 2:

The students will:

Identify the features of gifted and talented students

Be able to connect the features to proper spheres of life.

Session 3:

The students will:

Point out chances and threads concerning gifted and talented children.

Name and explain the special needs of gifted and talented children.

Titles and Contents of the Sessions :

Session 1:

The Kolb's Cycle of Experiential Learning. The Gardner's theory of Multiple Intelligences.

The difference between "talented" and "gifted; the areas of being talented and of being gifted.

Session 2:

Features of gifted and talented students. The contextualization of these features in educational and social context.

Session 3:

Chances and threads concerning gifted and talented students' features. Special educational needs of such children according to disciplines (subjects) and social life of the school.

Teaching-Learning Experiences

For all sessions: Students are required to read the material previously provided by the lecturer. For the VR implementations, experiential learning cycle will be followed.

Session 1:

Workshops on different skills and abilities – grouping things we do better (introduction to multiple intelligences)

Assignation the disciplines or subjects to the terms – "talented" and "gifted".

Session 2:

Students will be provided with two sets: gifts and talents, and the activities. In groups of 5 they must decide: which activities should be undertaken and which to avoid according to the talent or gift.

Session 3:

Students will be provided with different tasks to do, e.g.: some logical puzzles, drawings, geography quizzes, etc. They can choose the task they want to do according to their abilities and likes. Then, they have to randomly exchange tasks and do – not the tasks they wanted and like to do, but the tasks they received. Then the discussion should be conducted: What they had felt during fulfilling the tasks they didn't like or did not want to do? How was the work going? What they needed to do this work?

The conclusion should be followed by the lecture on the gifted and talented students' needs.

Evaluation Techniques

- Self assessment (held by the end of Session 2)
- Test assessment (held by the end of Session, 3)
- Paper with full charateristic of one chosen gifted or talented child.

Students will also be evaluated through the participation of activities held in the sessions.

MODUL II.

UNDERACHIEVEMENT OF GIFTED AND TALENTED STUDENTS

Objectives:

Session 1:

The students will identify important reasons for the underachievement of gifted students and report main characteristics of underachieving gifted students

Session 2:

The students will recognize educational challenges posed by underachieving gifted students with disabilities.

Session 3:

The students will delineate courses of instructional actions and specific techniques for supporting educationally underachieving gifted students

Titles and Contents of the Sessions :

Session 1:

Title: The oxymoron of underachievement in gifted students

Content: Social, educational and personal dimension of underachievement in students of high learning potential - Causes of underachievement and characteristics of gifted

underachievers – The role of motivation and perfectionism in underachievement of gifted students – Instructional quality and underachieving gifted learners

Session 2:

Title: Educational measures for supporting underachieving gifted students

Content: The role of differentiated instruction in supporting gifted learners – Strategies for motivating gifted underachievers – Strategies for dealing with perfectionism of gifted learners – Improving and adapting learning environment, content, process and product.

Session 3:

Title: Underachieving gifted learners with special needs

Content: Cases of double disability: The co-existence of giftedness and disability – Underachievement in Language Arts and Mathematics – Strategies for supporting students with double disability.

Teaching-Learning Experiences

For all sessions: Students are required to read the material previously provided by the lecturer. For the VR implementations, experiential learning cycle will be followed.

Session 1

Discuss in groups the social, personal, and educational repercussions of underachievement of gifted students and prepare a list with the main conclusions

Study the relationship between important instructional parameters and underachievement and prepare a list with suggestions for the support of underachieving gifted learners.

Session 2

Discuss differentiation, motivation, perfectionism and prepare a short essay with main points of interest.

Session 3

Explore cases of gifted students with disabilities and identify the combined effect of the double disability. Examine approaches and strategies for supporting gifted students

who underachieve in Reading, Writing, and Mathematics and write a short essay with principles of effective instruction.

Evaluation Techniques

- Self assessment
- Peer assessment
- Essay evaluation

MODUL III.

TYPES OF GIFTED AND TALENTED EDUCATION

Objectives:

Session 1:

The students will:

Identify curriculum differentiation in gifted and talented education,

Explain the principles of differentiated curriculum for gifted and talented students,

Explain best practices in curriculum differentiation,

Be able to use curriculum differentiation as needed for gifted and talented students.

Session 2:

The students will:

Identify acceleration in gifted and talented education,

Understand different forms of acceleration (such as; accelerated study, content acceleration, grade level acceleration and so on..),

Discuss the strengths and weaknesses of acceleration in gifted and talented education.

Session 3:

The students will:

Identify inclusive education,

Discuss the strength and weaknesses of inclusive education,

Analyze the effectiveness of inclusive education to enhance learning opportunities for gifted and talented students.

Session 4:

The students will:

Identify enrichment and enrichment strategies in gifted and talented education,

Discuss the strength and weaknesses of enrichment.

Session 5:

The students will:

Identify types of gifted and talented education (enrichment, acceleration, differentiation and inclusive education),

Identify what are the best practices to meet students' needs (or understand which method of education is best for their students),

Utilize different types of gifted and talented education as needed in combination for the greatest academic effect.

Titles and Contents of the Sessions :

Session 1:

Inclusive education (definition of inclusive education, models of inclusive education: Gentry's Total School Cluster Grouping (TSCG) ~ employs differentiation within the framework of inclusion).

Session 2:

Curriculum differentiation (definition of differentiation, principles of differentiated curriculum, models of curriculum differentiation Gagné's Differentiated Model of Giftedness and Talent).

Session 3:

Enrichment (definition of enrichment, strategies of enrichment, Models of enrichment: Renzulli's enrichment triad model, Purdue three stage by John Feldhusen, Kathryn Linden & Russel Ames).

Session 4:

Acceleration (definition of acceleration, forms of acceleration)

Session 5:

Overview of types of gifted and talented education.

Teaching-Learning Experiences

For all sessions: Students are required to read the material previously provided by the lecturer. For the VR implementations, experiential learning cycle will be followed.

Session 1

Select from one of the following subjects: Turkish/Spanish/Pollish etc., Maths, or Science,

Describe a student and his/her characteristics from the scenarios given and discuss why you selected this student,

Through peer tutoring; develop a lesson plan consisting one of the models you have learned for inclusive classroom.

Session 2

Select a student who are gifted from the scenarios given,

Describe the student and discuss why you selected this student,

Through peer tutoring; differentiate a pre-made lesson plan to meet the needs of a gifted learner,

Prepare a written explanation detailing the differentiation principles you included in the lesson plan prepared and the reasons you choose them.

Session 3

Work in groups of 5. Each groups;

Identify a subject and grade you will teach when they become teachers,

Discuss which enrichment strategy is best for the curriculum you identified to challenge gifted students in your group,

Prepare a written explanation detailing why you choose this enrichment strategy,

Present your groups' work to your classmates.

Session 4

Prepare a written paper explaining the benefits and risks of acceleration.

Then, work in groups of 5.

Discuss and compare your views of acceleration with students in your group.

Write a reflective paper about to what extent do you think acceleration meets gifted and talented students' needs.

Session 5

Presenting and submitting a reflective essay which includes students' views of best practices to meet gifted and talented students' needs and their reflections on related class activities.

Group discussion of how to utilize different types of gifted and talented education as needed in combination for the greatest academic effect.

Evaluation Techniques

- Self assessment
- Peer assessment
- Essay from each student by the end of Session

Students will also be evaluated through the participation of activities held in the sessions.

MODUL IV.

STRATEGIES FOR IMPLEMENTED GIFTED AND TALENTED EDUCATION (EMOTIONAL, COGNITIVE AND SOCIAL SKILLS DEVELOPMENT)

Objectives:

Session 1:

The students will:

To identify strategies to achieve the motivation and interest to learn of gifted students, with the intention of maintaining a positive emotional state provided by emotional communication.

To show emotions, feelings and wills that, from the perspective of the teacher, contribute to properly assist students with high abilities.

Session 2:

To discuss and plan activities which help to promote motivation and interest in different areas of student learning, deepening in whether their aspirations and interests are directed to those areas in which shows greater potential or not.

To identify and propose tasks that can develop the cognitive and metacognitive processes of the students.

Session 3:

To discuss and explain the best practices that favour the development of student attention.

To detect which skills and which initiatives are necessary to carry out with gifted students to raise their capacity for imagination and to develop appropriate family, social, moral, responsibility, as well as personal relationships.

To propose and plan teaching activities that accomplish the previous objective.

Session 4:

To analyze how students can direct daily tasks and activities with their skills and talents, planning future objectives.

To discuss what a Personal Life Plan (PLP) is and how it is carried out, with the intention of being able to work independently in the solution of their academic and personal problems.

Session 5:

To identify what tools and resources exist today to bring closer the classroom life with the reality of the immediate environment, with the intention of fusing the interests of students and the world around them.

To understand what a teacher that acts as a guide is, not as a protagonist among students, identifying the capacities to develop to obtain this goal.

To discuss about the need and way of working as a team in the classroom, with the intention of creating common and shared objectives

Session 6

To know what the executive functions are, its types and incidence in learning.

To propose activities to develop executive functions in students with high capacities: working memory, internal language development, inhibition of impulses or resistance to interference and cognitive effort.

Titles and Contents of the Sessions :

Session 1:

What is motivation? Definition of intrinsic and extrinsic motivation. Definition of what is the locus of internal and external control.

Emotional intelligence. Definition, to know the model of the five skills of Emotional Intelligence of Daniel Góleman.

Session 2:

Definition of cognitive and metacognitive thinking.

Piaget and Vygotsky's theory of constructivism and social constructivism.

Session 3:

Definition of attention and types of attention.

Multiple Intelligences Model by Howard Gardner.

Session 4:

Definition of personal life plan. Types and how to perform them.

Definition of SWOT: strengths, weaknesses, opportunities and threats.

Session 5:

Types of current innovative methodologies. Definition of Project-Based Learning.

Definition of cooperative and collaborative work. Techniques for the development of co-operative work in the classroom.

Session 6:

Definition of executive functions.

Cascade model of Koechlin and relationship with executive functions.

Teaching-Learning Experiences

For all sessions: Students are required to read the material previously provided by the lecturer. For the VR implementations, experiential learning cycle will be followed.

Session 1

Work in groups of 5. Each group:Identifies an emotion, explain it and conceptualize it. It proposes an activity for emotional control based on that emotion. Discuss strategies on how to improve motivation in gifted students. Share their own experiences about the locus of internal and external control. Start dynamic to move from an external locus of control to internal in gifted students. Each group presents its work to the whole classroom to debate about it and to show proposals for improvement.

Session 2

They should prepare a written document that explains what metacognition is and its relation to constructivism, highlighting the benefits that contribute to the students' learning process. Then, work in groups of 5. The points of view on the subject will be discussed and compared. Finally, a thoughtful article will be written on the extent to which a constructivist methodology meets the needs of gifted and talented students.

Session 3

Select a student that is endowed with the given scenarios. Describe the student and discuss why he selected this student. Make a didactic unit that contains three activities using a methodology focused on multiple intelligences.

Session 4

Afterwards, this information will be shared with the rest of the classmates.

Finally, the entire group will make a single written document with all the weaknesses and strengths that, in general, have appeared in this group.

Session 5

Work in groups of 5. Each group: Must plan a project, with objectives, phases and activities, and highlighting how students will work cooperatively. After that, in the large group, the work done will be shared.

Session 6

Work in groups of 5. Each group: Must perform a specific activity to develop each of the executive functions. In the large group, later, the work will be shared. Finally, a common framework document will be created, delving into how working with executive functions can be of great benefit to talented students.

Evaluation Techniques

- Self-evaluation (done at the end of Session 2)
- Peer evaluation (done at the end of the session, 3 and session 4)
- Group test at the end of session 3 and 5.

The students will also be evaluated through the participation of the activities carried out in the sessions.