Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

The effectiveness of flipped classroom based on cognitive load on self-regulated learning, high-level thinking skills and students' perceived cognitive load

Protocol summary

Study aim
Effectiveness of the flipped classroom based on cognitive load on self-regulated learning, high-level thinking skills, and students' perceived cognitive load

Design
The clinical trial includes an experimental group and a control group, randomized in a simple way, with pre-test and post-test on 30 students.

Settings and conduct
The experimental group receives cognitive-based flipped classroom instruction, but the control group receives no intervention. Both the experimental group and the control group are measured twice (pre-test-post-test) separately. The performance will be performed among the students of elementary education at Farhangian University of Chabahar in 12 sessions of 90 minutes.

Participants/Inclusion and exclusion criteria
Commitment to continuous participation in class meetings; Studying in the continuous undergraduate course of Chabahar Farhangian University; The same year of entry of intervention and control group students

Intervention groups
The design of training sessions will be done in a reverse way and according to the effects of cognitive load in 12 sessions of 90 minutes. Training in the control group is done in the form of lectures. Finally, after completing the course of cognitive load questionnaires, learning self-regulation and high-level thinking will be implemented as a post-test among the subjects of the two experimental and control groups. In order to maintain the effects of the intervention, one month later, both groups will undergo a follow-up test again.

Main outcome variables
Learning Self-Regulation; High-Level Thinking Skills, Perceived Cognitive Load

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20230911059405N1**
Registration date: **2024-01-04, 1402/10/14**
Registration timing: **prospective**

Last update: **2024-01-04, 1402/10/14**
Update count: **0**

Registration date
2024-01-04, 1402/10/14

Registrant information

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Gholamreza Sanagooi Moharrer

Name of organization / entity

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2024-02-10, 1402/11/21

Expected recruitment end date
2024-05-19, 1403/02/30

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The effectiveness of flipped classroom based on cognitive load on self-regulated learning, high-level thinking skills and students' perceived cognitive load

Public title
The effectiveness of flipped classroom based on cognitive load on self-regulated learning, high-level thinking skills and cognitive load

Purpose
Education/Guidance

Inclusion/Exclusion criteria

Inclusion criteria:
Commitment to continuous participation in class meetings Studying in the continuous undergraduate course of Farhangian University The same year of entry of intervention and control group students

Exclusion criteria:

Age
No age limit

Gender
Female

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **30**

Randomization (investigator's opinion)
Randomized

Randomization description
Since the sample size in each group is recommended to be at least 15 people in interventional research (Delaware, 2013), in order to select the sample, 30 qualified students who volunteered to participate in the research were selected using available sampling method. They will be randomly divided into two intervention and control groups (15 people in the intervention group and 15 people in the control group).

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics Committee in Islamic Azad University Research

Street address
Islamic Azad University Complex, Zahedan Branch, University Street

City
Zahedan

Province
Sistan-va-Balouchestan

Postal code
9816743545

Approval date
2023-12-31, 1402/10/10

Ethics committee reference number
IR.IAU.ZAH.REC.1402.090

Health conditions studied

1

Description of health condition studied
Flipped classroom, cognitive load, self-regulation, higher order thinking skills

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description
Self-Regulated Learning

Timepoint
Before Starting the Educational Intervention and 60, 90 Days After the Educational Intervention

Method of measurement
Self-Regulated Learning Questionnaire (MSLQ) Pintrich and DeGroot

2

Description
Higher level Thinking Skills

Timepoint
Before Starting the Educational Intervention and 60, 90 Days After the Educational Intervention

Method of measurement
Questionnaire of High-Level Thinking Skills of Moharery (1398)

3

Description
Cognitive Load

Timepoint
Before Starting the Educational Intervention and 60, 90 Days After the Educational Intervention

Method of measurement
PASS Cognitive Questionnaire

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Determining the goal, compiling the electronic content, sharing the content with the students of the educational intervention group, opening questions and answers, explanation of the example by the professor, explanation of the example by the students of the educational intervention group, conclusion
Category
N/A

2

Description
Control group: without receiving educational intervention
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Farhangian University of Chabahar
Full name of responsible person
Asma Mollazehi
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Sponsors / Funding sources

1

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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Islamic Azad University
Proportion provided by this source
100
Public or private sector
Public
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Academic

Person responsible for general inquiries

Contact
Name of organization / entity
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available
Study Protocol
No - There is not a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
No - There is not a plan to make this available
Clinical Study Report
Yes - There is a plan to make this available
Analytic Code
No - There is not a plan to make this available
Data Dictionary
Not applicable
Title and more details about the data/document
Information on the main outcome is shared
When the data will become available and for how long
Access started from 1403
To whom data/document is available
Supervisor, advisor and referees
Under which criteria data/document could be used
Checking the accuracy of the statistical data provided
From where data/document is obtainable
Contact the principal investigator through the university's research unit Email address: mollazehi1365@gmail.com Phone number: 09010795624
What processes are involved for a request to access data/document
Review of the presented research report Request to send data files through the researcher's email address or contact number Sending the data file by the researcher via email, research assistant system or internal social messengers
Comments