



# CoConstruct

Digital learning meets sustainability

[coconstruct.eu](http://coconstruct.eu)

## Methods of E-Learning



Co-funded by the  
Erasmus+ Programme  
of the European Union

## **Publisher & Project Coordination**

BGZ Berliner Gesellschaft  
für internationale Zusammenarbeit mbH  
www.bgz-berlin.de

## **Project Partners:**

Berufsförderungswerk der Bauindustrie  
Berlin-Brandenburg e.V.  
Berufsgymnasium für Bauwesen, Architektur  
und Geodäsie "Angel Popov"  
Jokilaaksojen koulutuskuntayhtymä / The  
Federation of Education in Jokilaakso  
Politechnika Poznańska (PUT)  
Zespół Szkół Budownictwa Nr 1 (ZSB1)  
SC MANCOM CENTRU S.R.L

## **Photo credits:**

© iStock.com/Morsa Images  
© Monika Siewczyńska

Berlin, 2023

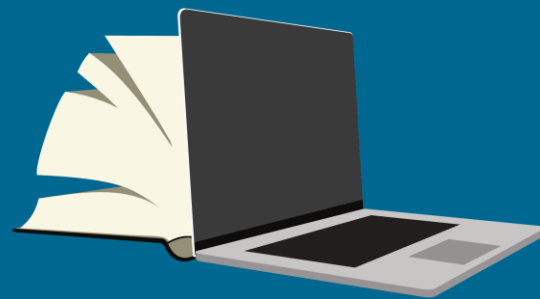




# E-learning

## in terms of Dalton education

Monika Siewczyńska



Tell me and I'll forget.

Show me and I'll remember.

Let me do it and I'll understand.

*/Confucius/*

Independent performance of the task must be preceded by obtaining knowledge and learning the method of finding a solution.

G. Polya (1945) distinguished four phases of solving a mathematical problem:

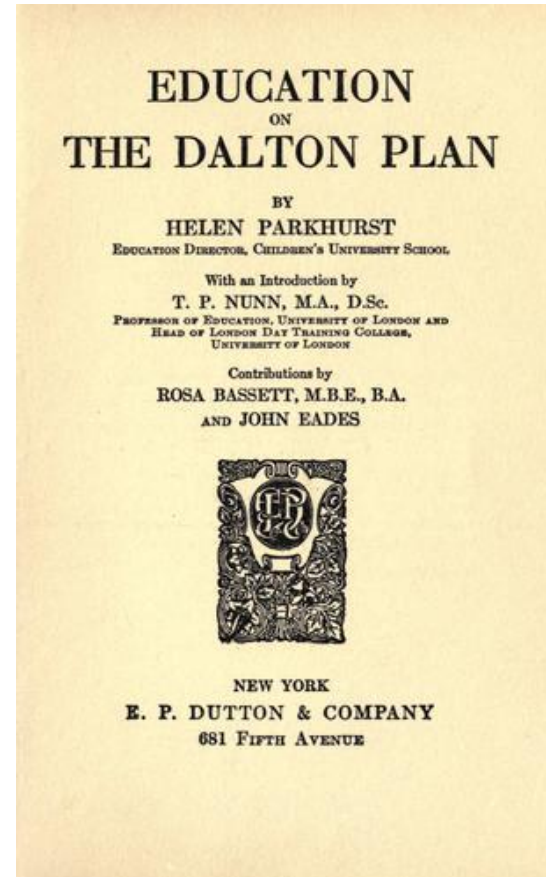
1. Understanding the task
2. Laying out a solution plan
3. Execution of the plan
4. A glance back

The hardest part is coming up with an idea for a solution plan, especially when you have little knowledge about the subject.



The role of the teacher is to give such hints that the given hints lead the students to the method using the knowledge already possessed by the students.

# Dalton education



# Dalton plan

# independence



# Dalton plan

# cooperation





# Dalton plan

freedom /  
responsibility



# Dalton plan

# reflection



<https://www.pexels.com/>

# Dalton education

is based on  
minimizing the teacher's interference  
and maximizing the use  
of the learner's independent work

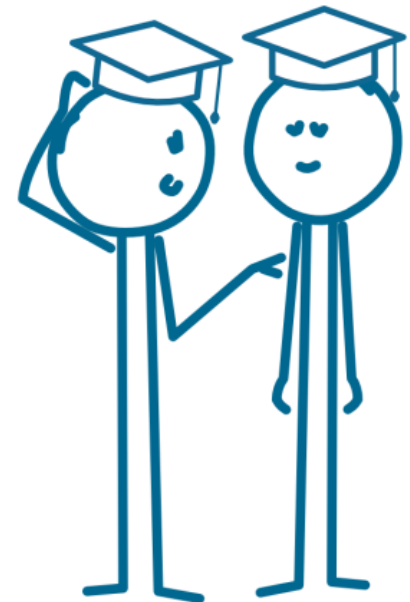


The student has at his disposal properly prepared instructions for performing tasks.



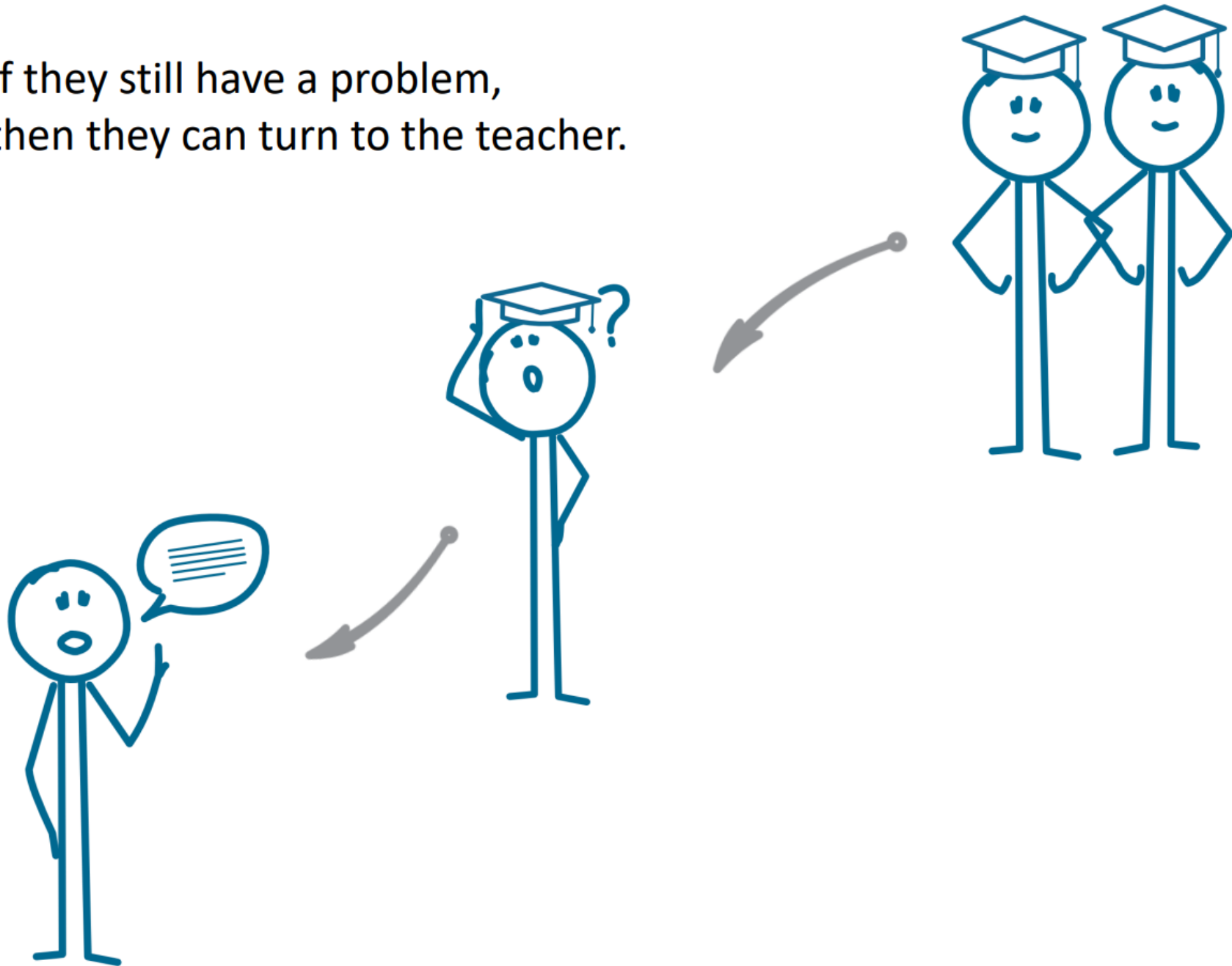


The student is given time to complete the task independently.



If he has a problem, he can turn to a teammate to look for a solution together.

If they still have a problem,  
then they can turn to the teacher.





After completing the task, the student independently checks the correctness of the calculations.



Performing a task independently gives a sense of success and motivates for further development.





This organization of work **benefits**

**students** by motivating them to be independent

and the **teacher** by limiting the number of questions

and giving the opportunity to provide  
specific individual help to those students who need it,

without taking up the time and attention  
of all students to re-translate the entire task.

Collaboration and responsibility are also important in Dalton education,

and working in teams of two or three gives an additional opportunity to practice group work skills,

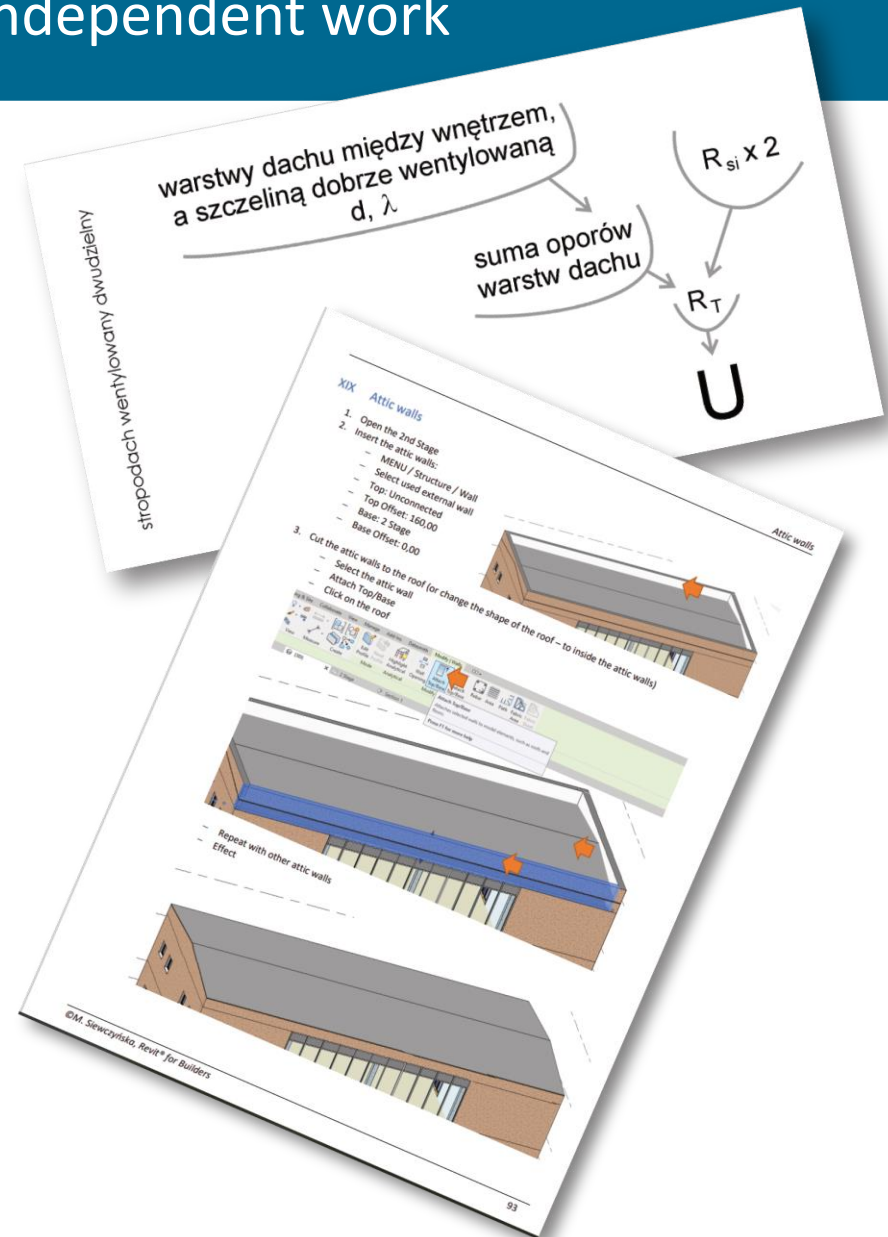
which is very much needed in later professional work.

# e-learning with instructions for independent work

The presented instructions have been prepared for auditorium classes in Masonry Structures, Building Physics, Architectural Design and BIM Technology.

They were available to students in the form of flashcards or instructional videos on the Moodle platform.

Classes were held remotely on the Zoom platform, which allows you to divide into subgroups.



Stropodach wentylowany dwudzielny nad pomieszczeniem ogrzewanym ( $t_i > 16^\circ\text{C}$ )

Warstwy:  
 1 -  
 2 -  
 3 -  
 4 -  
 5 -  
 6 -

Warstwa	Grubość $d$ [m]	Wsp. Przewodzenia ciepła $\lambda$ [W/mK]	Opór przenikania ciepła $R$ [ $\text{m}^2\text{K/W}$ ]
1			
2			
3			
suma			

$R_T = R_{si} + R_1 + R_2 + R_3 + R_4 + R_{se}$   
 $R_T =$   
 $U = \frac{1}{R_T}$   
 $U =$   
 $U_c =$

$d_1 =$        $\lambda_1 =$   
 $d_2 =$        $\lambda_2 =$   
 $d_3 =$        $\lambda_3 =$   
 $d_4 =$        $\lambda_4 =$   
 $d_5 =$        $\lambda_5 =$   
 $d_6 =$        $\lambda_6 =$

szkic

At the beginning of the class, the teacher explained the instructions, and then the students themselves divided into teams and switched to separate "rooms".

The teacher gave the teams time to complete the task on their own, and if they had a question, they could ask it in a common chat, go back to the "main room" or ask the teacher to join their "room".

The teacher monitored the work of the groups, also entering those "rooms" that did not have any questions - then he controlled the progress of work.

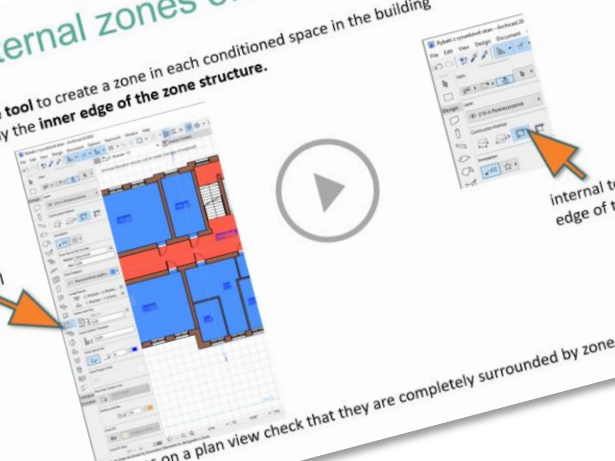
80      Edycja ścian

- 1 Kliknąć na ścianę, by ją zaznaczyć  
 Jeśli po kliknięciu w jedną ścianę zaznaczają się wszystkie ściany oznacza to, że są zgrupowane
- 2 Kliknąć ikonę *Zawieś grupowanie* i Esc
- 3 Kliknąć na ścianę, by ją zaznaczyć
- 4 Ponownie kliknąć na ścianę, by ją zaznaczyć
- 5 Zmiana długości ściany:  
 1 Kliknąć w kółko na końcu zaznaczonej ściany i przesunąć w wybrane miejsce lub wpisać dokładną długość na klawiaturze
- 6 Przesunięcie ściany:  
 1 Kliknąć na ścianę, by ją zaznaczyć  
 2 Przesunąć mysz we właściwym kierunku korzystając ze znaczników *Ctrl+D* i przesunąć mysz wpisując odległość na klawiaturze (kierunki pionowy i poziomy włączają się automatycznie i sygnalizowane to jest pojawieniem się niebieskiej przerywanej linii)
- 7 Obrót ściany:  
 1 Kliknąć na ścianę, by ją zaznaczyć

After completing the task, separate "rooms" were closed, the results were presented so that everyone could check the correctness of their solution, and there was still time for a summary and any questions.

# 1 Internal zones of rooms

use the **zone tool** to create a zone in each conditioned space in the building by using only the **inner edge of the zone structure**.



When inserting zones on a plan view check that they are completely surrounded by zone boundaries.

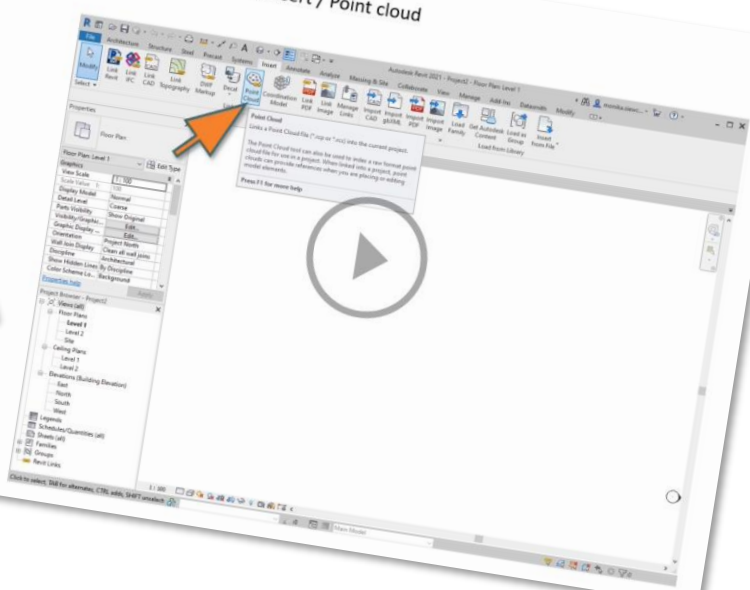
internal tool edge of the construction of zones

zone tool

▶

# Open new file

MENU / Insert / Point cloud



▶

**Performing a task independently gives a sense of success and motivates for further development.**

**The teacher's job is to show the student the way and the possibilities.**

## Project Partnership:



### Coordinator

BGZ Berliner Gesellschaft  
für internationale Zusammenarbeit mbH

[www.bgz-berlin.de](http://www.bgz-berlin.de)

Pohlstraße 67, DE – 10785 Berlin



### Germany

Berufsförderungswerk der Bauindustrie  
Berlin-Brandenburg e. V.

[www.bfw-bb.de](http://www.bfw-bb.de)



### Poland

Politechnika Poznańska

[www.put.poznan.pl](http://www.put.poznan.pl)



ZSB1

[www.zsb1.poznan.pl](http://www.zsb1.poznan.pl)



### Bulgaria

PGSAG „Angel Popov“

<https://pgsagapvt.alle.bg/>



### Romania

Mancom GmbH

<http://www.mancomgmbh.de/>



### Finland

JEDU Vocational Educational Centre

[www.jedu.fi](http://www.jedu.fi)