FACULTY OF ENGINEERING MANAGEMENT
BIALYSTOK UNIVERSITY OF TECHNOLOGY

VIRTUAL AND MULTICULTURAL STUDENTS PROJECTS AS A CRITICAL COMPETENCE –
A COMPARATIVE RESEARCH STUDY BASED ON USED PRACTICES OF ACADEMICS FROM THE EASTERN EUROPEAN UNIVERSITIES
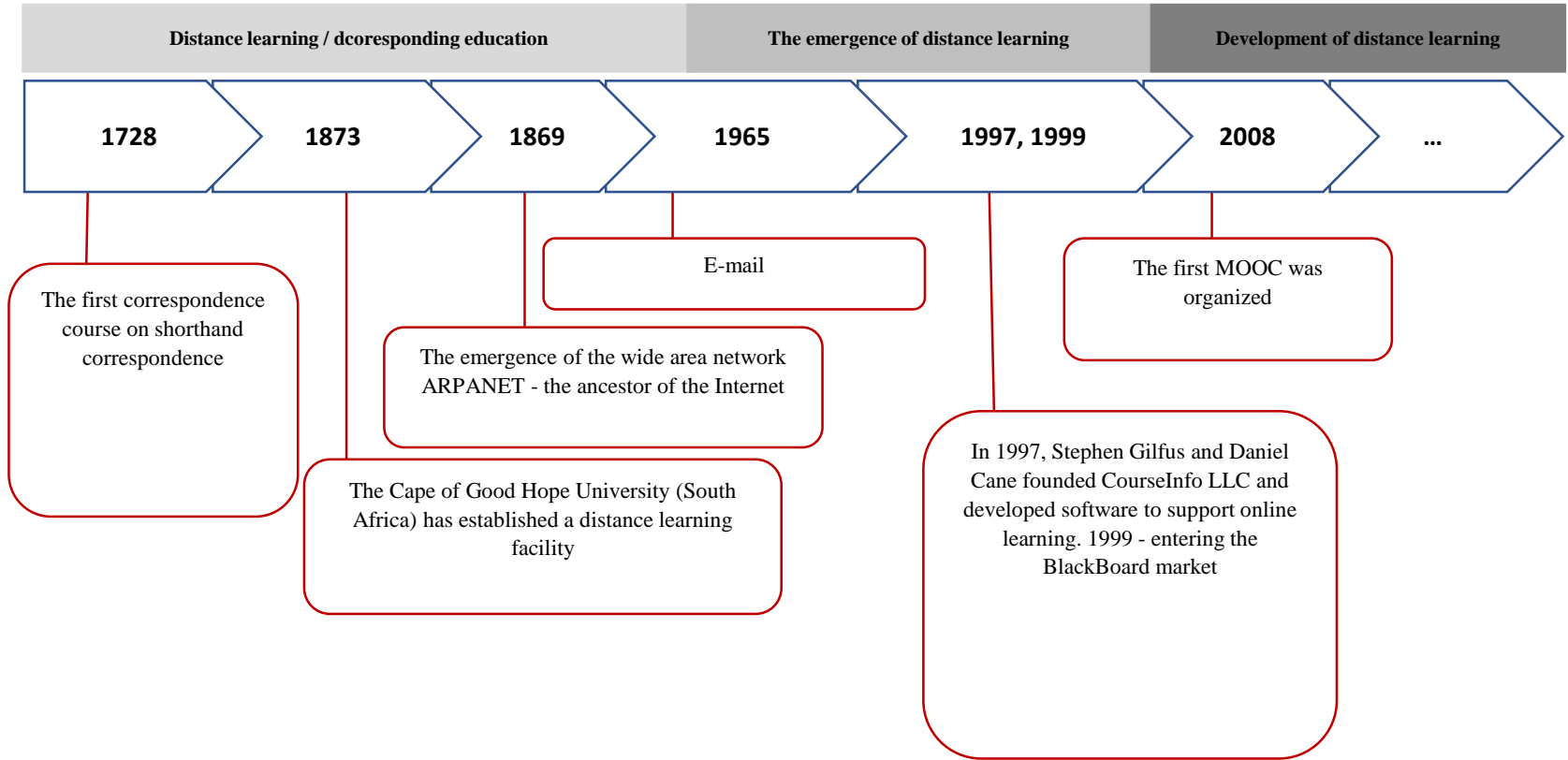
Dr Andrzej Pawluczuk

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The main research aimed is exploring the academic staff's experience about the students' teamwork skills for virtual and multicultural teams.

1) examine which methods are using the academics to develop students' virtual and multicultural teamwork skills,
2) what kind of aspect they consider for student projects elaborating virtually,
3) finding the main factors influence academics to use methods focused on developing virtual and multicultural skill to work in group

The history of e-learning

Distance learning / dcoresponding education	The emergence of distance learning	Development of distance learning

1728	1873	1869	1965	1997, 1999	2008	...

The first correspondence course on shorthand correspondence

The Cape of Good Hope University (South Africa) has established a distance learning facility

The emergence of the wide area network ARPANET - the ancestor of the Internet

E-mail

In 1997, Stephen Gilfus and Daniel Cane founded CourseInfo LLC and developed software to support online learning. 1999 - entering the BlackBoard market

The first MOOC was organized

Tools in distance learning

Collaboration	Project Management	File Sharing/Document Storage	Meeting Tools	Video & Audio Conferencing
Redbooth **Huddle** **Blackboard** **Collaborate** **Goplan**	MS Project Primavera Apollo Wrike	Google Dox Dropbox Sharepoint Box Zoho Docs	Goto Meeting WebEx Adobe Connect iMeet	Zoom Microsoft Teams Skype Cisco Telepresence Polycom Telepresence Join Me

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2 Ojca Tarasiuka Street
16-001 Kleosin, Poland
phone +48 85 746 98 02
fax +48 85 663 19 88
e-mail: wiz.sekretariat@pb.edu.pl

Definition

Virtual teams - as a team of people working on the implementation of a common goal, in which team members are spatially dispersed, and communication takes place through modern information technologies (messenger, skype).

Multicultural team is understood as a team of people working on the implementation of a common goal in which there are representatives of at least two national cultures/countries. A multicultural workforce is one in which a wide range of cultural differences exist among the employees in the organization. The most common traits used to identify the level of multicultural team are "age, sex, ethnicity, physical ability, race and sexual orientation" (Encyclopedia of Business).

Methodology

Comparative research among the academics at the Bialystok University of Technology (BUT) from Poland (sample 62 of the 660 employed academics staff) and the Babes-Bolay University (BBU) from Romania (sample 57 of 1 450 employed academics staff),

The questionnaire consist of 11 questions, including 2 open question and metrics of 9 question. The total number of category items was 105, but for this paper used 60 to achieve research aims

The objects of the research

	BUT	BBU
Emplyees	1 600	3 000
Students	12 500	43 000
Faculties	7	21
Year of setting	1948	1 578
Foreign students	1 500	-

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Perspective of virtual and multicultural teams in BUT and BBU

	Mean		Standard deviation		Mann-Whitney BUT		Mann-Whitney BBU	
	BUT	BBU	BUT	BBU	Z	p	Z	p
My teaching is focused on developing students skills for working in multicultural teams	3,15	3,16	1,23	1,15	0,109	0,913	0,113	0,910
My teaching is focused on developing students skills for working in virtual teams	2,69	2,89	1,11	1,18	-0,947	0,344	-0,977	0,329
University teaching prepares students to work in multicultural teams	3,52	3,11	0,94	1,08	1,936	0,053	**2,043**	**0,041**
University teaching prepares students to work in virtual teams	3,21	3,11	0,89	1,13	0,516	0,606	0,543	0,587
Employers appreciates the ability to work in multicultural teams	3,69	3,89	0,98	1,08	-1,673	0,094	-1,858	0,063
Employers appreciates the ability to work in virtual teams	3,69	3,95	1,05	1,01	-1,378	0,168	-1,454	0,146
Traditional teams are more effective and efficient than virtual teams	3,21	3,11	0,96	0,86	0,700	0,484	0,738	0,461
Traditional teams are more effective and efficient than multicultural teams	2,56	3,11	0,90	1,08	**-2,838**	**0,005**	**-3,014**	**0,003**

Methods for developing students' multicultural and virtual teamwork skills

	Mean		Standard deviation		Mann-Whitney BUT		Mann-Whitney BBU	
	BUT	BBU	BUT	BBU	BUT	BBU	BUT	BBU
Academic games or contests between groups of students	2,06	2,79	1,05	1,37	**-2,886**	**0,004**	**-2,986**	**0,003**
Class tasks that require work in groups/teams	4,23	3,95	0,82	1,16	0,939	0,348	1,002	0,316
Brainstorming tasks in groups	3,65	3,84	1,01	1,19	-1,426	0,154	-1,504	0,133
Field trips/group visits/going out with the students	2,10	2,05	1,11	0,89	-0,093	0,926	-0,098	0,922
Role plays in groups	2,31	2,68	1,18	1,04	-1,880	0,060	-1,959	0,050
Case studies to be solved in groups	3,69	3,89	1,12	1,18	-1,067	0,286	-1,111	0,266
Thematic student clubs/centres of interest	2,00	2,11	1,16	1,22	-0,340	0,734	-0,362	0,717
Group projects (all members receive the same grade)	3,65	3,89	1,12	1,21	-1,284	0,199	-1,335	0,182
Presentations in groups (all members receive the same grade)	3,34	3,79	1,16	1,45	**-2,383**	**0,017**	**-2,457**	**0,014**
Debates in groups/teams	3,29	3,42	1,11	1,24	-0,444	0,657	-0,462	0,644
Feedback/debriefing for the entire groups	3,69	3,63	1,02	1,05	0,356	0,722	0,375	0,708
Tasks that includes the use of technology for multicultural and virtual team working	2,37	3,32	1,12	1,23	**-4,043**	**0,000**	**-4,153**	**0,000**
e-learning	1,95	2,95	1,02	1,33	**-4,107**	**0,000**	**-4,245**	**0,000**
Assigning students to groups according to some specific criteria	2,06	2,58	1,13	1,24	**-2,343**	**0,019**	**-2,437**	**0,015**
Encouraging students to use online tools when working in teams (for example: google docs, PhDopbox, Skype)	2,97	3,47	1,35	1,32	**-1,992**	**0,046**	**-2,038**	**0,042**

Students skills for working on virtual and multicultural teams

	Mean		Standard deviation		Mann-Whitney BUT		Mann-Whitney BBU	
	BUT	BBU	BUT	BBU	BUT	BBU	BUT	BBU
Participating to the formulation of the teams objectives and strategy	3,29	0,86	3,06	1,23	0,894	0,371	0,939	0,348
Monitoring the progress of the teams towards goals	3,94	0,90	3,22	1,24	**2,969**	**0,003**	**3,108**	**0,002**
Keeping track of the resources available for the teams (room, databases, software, virtual disk, teleconferencing tools)	3,52	1,13	3,18	1,26	1,356	0,175	1,395	0,163
Assisting the team members to perform their tasks	3,87	0,84	3,33	1,35	**2,040**	**0,041**	**2,114**	**0,034**
Coordinating the actions and timing of the teams	3,65	1,12	3,06	1,19	**2,563**	**0,010**	**2,641**	**0,008**
Assisting the members in conflict management situations	2,95	1,03	3,22	1,37	-1,400	0,161	-1,441	0,149
Motivating and building the confidence of the team members	3,31	1,20	3,22	1,28	0,271	0,786	0,279	0,780
Assisting members when facing individual emotional difficulties (frustration, cohesion)	3,21	1,24	3,11	1,21	0,313	0,754	0,321	0,748
Assisting members of the team to exchange the knowledge in groups and between groups	3,31	1,05	3,39	1,27	-0,620	0,535	-0,641	0,522
Assisting members of the team to be active in work by self evaluating in the end	3,50	0,92	3,56	1,36	-0,728	0,467	-0,756	0,450

Supporting factors of students skills for working on virtual and multicultural teams

	Mean		Standard deviation		Mann-Whitney BUT		Mann-Whitney BBU	
	BUT	BBU	BUT	BBU	BUT	BBU	BUT	BBU
A clear university strategy on the role of multicultural team working	2,47	3,11	1,07	1,30	**-2,726**	**0,006**	**-2,799**	**0,005**
Standards and evaluation criteria for adopting & developing virtual teamwork	2,48	3,58	1,05	1,00	**-5,128**	**0,000**	**-5,320**	**0,000**
Access to resources and tools	3,65	3,89	1,03	1,22	-1,633	0,102	-1,708	0,088
Training/ support for teaching skills for multicultural team working	3,03	3,68	1,28	1,27	**-2,718**	**0,007**	**-2,793**	**0,005**
Other colleagues' teaching methods and achievements in teaching virtual and multicultural team working	3,10	3,47	1,14	1,05	-1,745	0,081	-1,810	0,070
Size of the class	3,74	3,68	1,07	1,47	-0,484	0,628	-0,503	0,615
Heavy workload	3,92	3,37	1,03	1,47	1,745	0,081	1,818	0,069
Students quality and interest	4,10	3,84	0,80	1,32	0,157	0,875	0,169	0,866
The level of your technical skills	3,71	3,53	0,93	1,10	0,684	0,494	0,724	0,469
Your pedagogical skills	3,77	3,89	1,00	0,98	-0,723	0,469	-0,766	0,444
Your knowledge and experience in virtual and multicultural team working	3,81	3,74	0,94	1,38	-0,556	0,578	-0,581	0,561
Your age	2,44	2,68	1,24	1,39	-0,931	0,352	-0,958	0,338
Your career trajectory	3,06	2,95	1,13	1,48	0,412	0,680	0,422	0,673

Conclusion

- **similar in scope of teaching methods**
- **ideas about virtual and multicultural student teams and developing students skill for such teams**

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Practical implications

- setting the strategy of the university and their faculties,
- using the new methods in teaching process,
- helping teachers and students the understanding the common aims in improving the skill of virtual and multicultural teamwork

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Thank you for attention!

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a.Pawluczuk@pb.edu.pl

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