PASSFR.EU

A Digital Learning Platform for Generation Z: Passport to IFRS®

IO1 IFRS Digital Education Report

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PREFACE

Contributing to the IFRS® education of GenZ business students is the priority of PASSFR. PASSFR will construct a flexible but constructing structured digital learning platform. This kind of digital training will be attractive for GenZ students. PASSFR includes several IOs that are especially designed for contributing digital readiness of HEIs in IFRS® education.

One of the IOs is IO1 IFRS Digital Education Report with the two main objectives:

(1) Measurement of IFRS and digital learning/teaching perceptions of academics and students in HEIs. To realise the settled objective, two respective questionnaires were prepared.

The survey was conducted online in the period from 24 September 2021 to 15 October 2021. Two basic measurement tools (questionnaires) have been used. The questionnaires have been designed in Google Forms and distributed via email. The data have been processed by IBM SPSS statistics.

The first measurement tool was targeted towards Generation Z students who have attended IFRS®courses in higher education institutions in Turkey, North Macedonia, Bulgaria, Romania and Lithuania. It was composed of three main parts – one to define students' demographics and background, second – to capture and measure their IFRS® perceptions, and third –to identify the digital learning perceptions of the students in HEIs.

The second measurement tool was targeted towards students' educators – academicians in higher education institutions in Turkey, North Macedonia, Bulgaria, Romania and Lithuania. The questionnaire was composed of three parts – one to define academicians' demographics and background, second – to identify their IFRS® perceptions, and third – to measure academicians' perceptions towards digital learning and teaching.

(2) Design of Principle-based education model on the basis of the generations derived from the surveys.

1. Generation Z students in HEIs and their perceptions towards IFRS® and digital learning

First part of the questionnaire includes 10 questions about students' demographics and theirIFRS® background. The data sample consists of 505 accounting students distributed between the university-partners as follow: 95 students who have attended IFRS® courses in Romania, 38 in Bulgaria, 81 in North Macedonia, 214 in Turkey, and 77 in Lithuania. 35.7% of the responded students were males and the rest were females (Table No. 1).

Table No. 1: Gender profile of the accounting students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	180	35,6	35,7	35,7
	Female	324	64,2	64,3	100,0
	Total	504	99,8	100,0	
Missing	System	1	,2		
Total		505	100,0		

Regarding their nationality, 38.9% of the student were Turkish, 7.7% Bulgarians, 15.3% Lithuanians, 19.0% Romanians, 14.1% North Macedonians and 5.0% were from other nationality origins – mostly Albanians and Azerbaijani (Table No. 2).

Most of the students (75.0%) covered by the surveys were enrolled in Bachelor's degree programmes and 24.6% of them were postgraduates (14.9% Master degree students and 8.7% PhD students) (Table No. 3). 94.0% of them were accounting students in a public university.

Table No. 2: Nationality profile of the accounting students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Turkey	196	38,8	38,9	38,9
	North Macedonia	71	14,1	14,1	53,0
	Romania	96	19,0	19,0	72,0
	Bulgaria	39	7,7	7,7	79,8
	Lithuania	77	15,2	15,3	95,0
	Other	25	5,0	5,0	100,0
	Total	504	99,8	100,0	
Missing	System	1	,2		
Total		505	100,0		

Table No. 3: Study cycle of the accounting students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate (Bachelor student)	377	74,7	75,0	75,0
	Postgraduate (Master student)	75	14,9	14,9	89,9

	Postgraduate (PhD student)	44	8,7	8,7	98,6
	Other	7	1,4	1,4	100,0
	Total	503	99,6	100,0	
Missing	System	2	,4		
Total		505	100,0		

A little over 1/3 of the accounting students (37.9%) reported that they have not taken and passed any IFRS® course yet. 58.5% of them have passed up 3 IFRS® courses and 3.7% - more than 3 IFRS® courses (Table No. 4). In 69.14% of cases, the IFRS® courses have been delivered in a language different from English, usually the official language of the country where the university was located. Big portion of accounting students (94.7%) have not experienced failures in passing IFRS® courses, 3.9% has failed on 1 IFRS® course and 0.8% and 0.6% of them failed in 2 or 3 IFRS® courses (Table No. 5).

Table No. 4: Number of IFRS®-related courses passed by the students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	185	36,6	37,9	37,9
	1	157	31,1	32,2	70,1
	2	75	14,9	15,4	85,5
	3	53	10,5	10,9	96,3
	More than 3	18	3,6	3,7	100,0
	Total	488	96,6	100,0	
Missing	System	17	3,4		
Total		505	100,0		

Table No. 5: Number of IFRS®-related courses students failed in

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	462	91,5	94,7	94,7
	1	19	3,8	3,9	98,6
	2	4	,8	,8	99,4
	3	3	,6	,6	100,0
	Total	488	96,6	100,0	
Missing	System	17	3,4		
Total		505	100,0		

Most of the students who have completed the questionnaire defined themselves as knowledgeable on IFRS® but inexperienced in their practical implementation. 81.4% of them have theoretical knowledge in IFRS® but only small portion of them defined themselves as very knowledgeable (7.4%) or experts in the topic (0.4%). The average student has some theoretical knowledge in IFRS® ($\underline{x}$= 2.32; Mo=2.0; Me=2.0) and it is significantly less than reasonable ($\underline{x} \neq 3.0$; t-test=-17.336; df=500; p-value<0.05). As the distribution of the variable 'degree of knowledge in IFRS®' (Kolmogorov-Smirnov test=0.217; p-value=0.000) is non-normal, the following part of the analysis will be based on non-parametric tests.

Table No. 5.1: Degree of knowledge on IFRS® topic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No knowledge at all	93	18,4	18,6	18,6
	Some knowledge	194	38,4	38,7	57,3
	Reasonably knowledgeable	175	34,7	34,9	92,2

	Very knowledgeable	37	7,3	7,4	99,6
	Expert	2	,4	,4	100,0
	Total	501	99,2	100,0	
Missing	System	4	,8		
Total		505	100,0		

Table No. 5.2: One-sample statistics for degree of knowledge on IFRS® topic

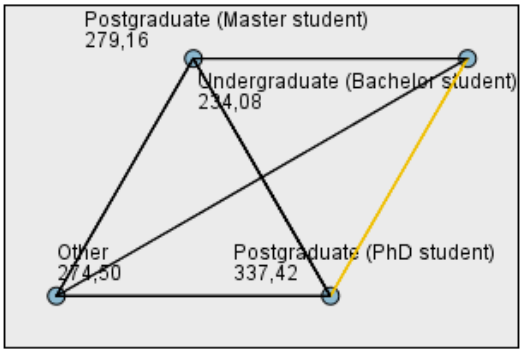
	N	Mean	Std. Deviation	Std. Error Mean
Degree of knowledge of IFRS	501	2,32	,874	,039

Table No. 5.3: One-sample t-test statistics for degree of knowledge on IFRS® topic

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Degree of knowledge of IFRS	-17,336	500	,000	-,677	-,75	-,60

Study cycle is a significant differentiator between accounting students in regard to their perceptions of knowledge on IFRS®. There is a significant deference in the perceptions of knowledge on IFRS® between Doctoral and Bachelor students (Figure 1). In general, doctoral students perceive themselves as more knowledgeable ($\underline{x}$= 2.91) than Bachelor students ($\underline{x}$= 2.22).

Pairwise Comparisons of Studying level



Each node shows the sample average rank of Studying level.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Undergraduate (Bachelor student)-Other	-40,422	52,059	-,776	,437	1,000
Undergraduate (Bachelor student)-Postgraduate (Master student)	-45,082	17,265	-2,611	,009	,054
Undergraduate (Bachelor student)-Postgraduate (PhD student)	-103,343	21,749	-4,752	,000	,000
Other-Postgraduate (Master student)	4,660	53,932	,086	,931	1,000
Other-Postgraduate (PhD student)	62,920	55,530	1,133	,257	1,000
Postgraduate (Master student)-Postgraduate (PhD student)	-58,260	25,914	-2,248	,025	,147

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Figure 1: Kruskal-Wallis test for differences in the perceptions of knowledge on IFRS® between different study levels

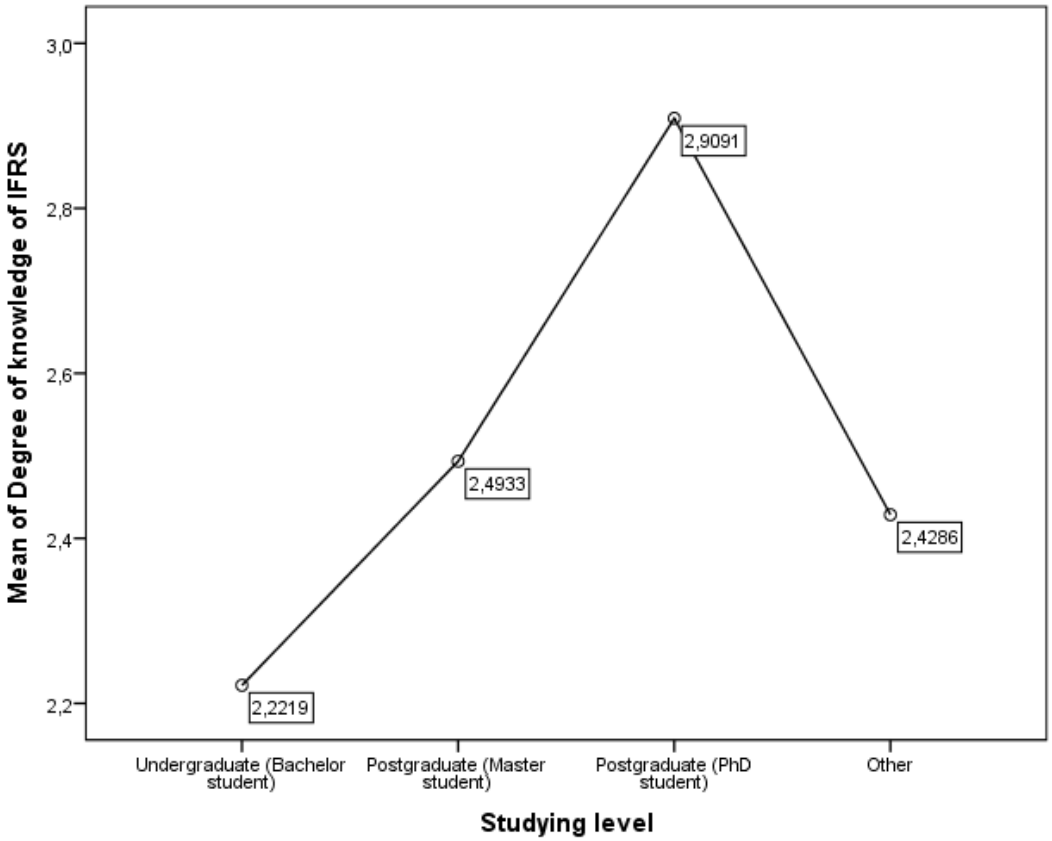


Figure 2: Means plot of knowledge on IFRS® for students from different study levels

Although most of the accounting students defined themselves as knowledgeable on IFRS®, only 39.1% of them have any kind of practical experience (Tables No. 6.1-6.3). The average accounting student has no practical experience at all ($\underline{x} \neq 2.0$; t-test=-13.357; df=500; p-value<0.05; $\underline{x}$= 1.54; Mo=1.0; Me=1.0). As the distribution of the variable 'degree of practical experience in IFRS®' (Kolmogorov-Smirnov test=0.366; p-value=0.000) is not normal, the following part of the analysis will be based on non-parametric tests.

Table No. 6.1: Degree of practical experience in IFRS® field

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No practical experience at all	305	60,4	60,9	60,9
	Some practical experience	134	26,5	26,7	87,6
	Reasonably experinced	51	10,1	10,2	97,8
	Very experienced	10	2,0	2,0	99,8
	Expert	1	,2	,2	100,0
	Total	501	99,2	100,0	
Missing	System	4	,8		
Total		505	100,0		

Table No. 6.2: One-sample statistics for degree of practical experience in IFRS® field

	N	Mean	Std. Deviation	Std. Error Mean
Practical experience of IFRS	501	1,54	,773	,035

Table No. 6.3: One-sample t-test statistics for degree of practical experience in IFRS® field

	Test Value = 2					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Practical experience of IFRS	-13,357	500	,000	-,461	-,53	-,39

Study cycle is a not a significant differentiator between accounting students in regard to their practical experience on IFRS®. Although doctoral students perceive themselves as more experienced ($\underline{x}$= 1.84) than the students from all other study cycles, the observed differences are not statistically significant and due to the random sampling (p-value of Kruskal-Wallis test=0.67) (Figure 3).

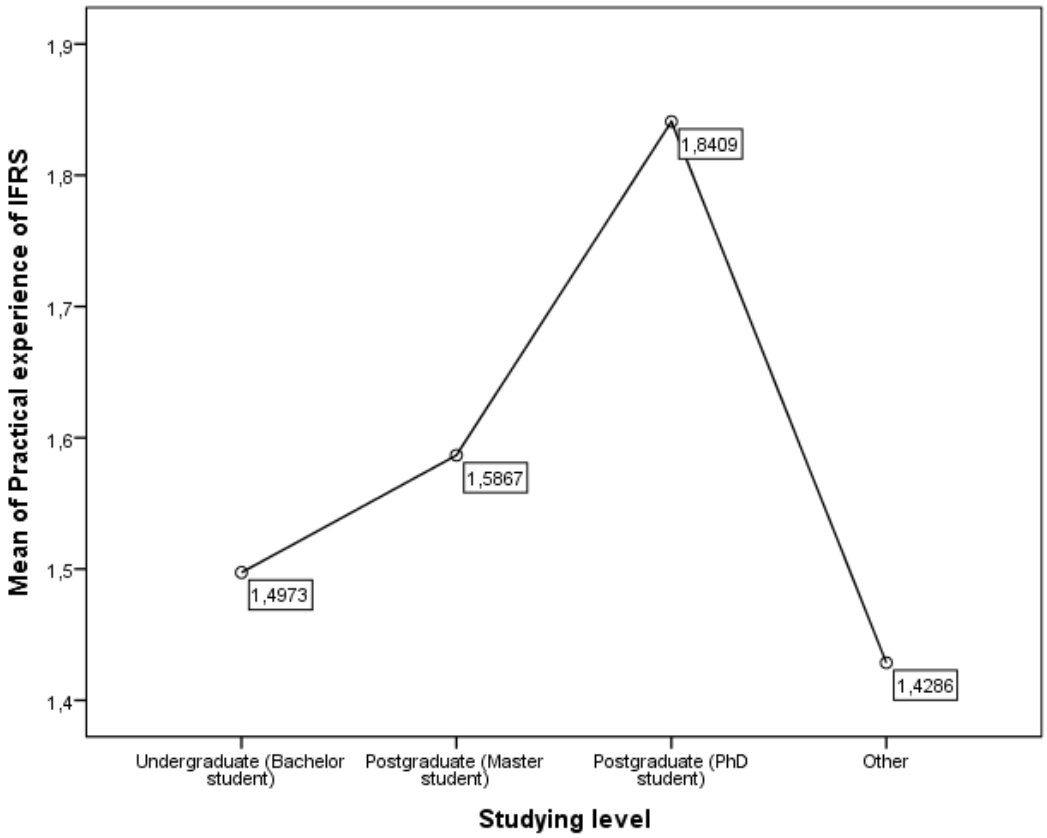


Figure 3: Means plot of practical experience in IFRS® for students from different study levels

1.1. IFRS® perceptions of students in HEIs

Second part of the questionnaire includes students' perceptions and opinion to various topics related with the accounting curricula, importance of IFRS® and their teaching in universities, usefulness of IFRS® materials, perceived challenges in learning IFRS®, preferred sources for keeping up-to-date with IFRS® changes.

Accounting students are interested in learning IFRS®. 84.3% of the respondents reported that they are interested in learning IFRS®. 91.5% of them recognized IFRS® as important for their education and graduation and should be incorporated in their curriculum. Significant portion of the accounting students (69.7%) reported that their curriculum includes a IFRS®-related course and according to 85.39% of the them this course is mandatory for the graduation. Only 1.8% of the accounting students

stated that learning of IFRS® is not at all important (Tables No. 7.1-7.4). The average student perceived the learning of IFRS® as important ($\underline{x} \neq 3.0$; t-test=12.295; df=501; p-value<0.05; $\underline{x}$= 3.56; Mo=3.0; Me=3.0). As the distribution of the variable 'are interested in learning IFRS®' (Kolmogorov-Smirnov test=0.182; p-value=0.000) is not normal, the next part of the analysis will be based on non-parametric tests.

Table No. 7.1: Binomial test for equality between the proportions of accounting students who are interested or not interested in IFRS®

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
Are you interested in learning IFRS?	Group 1	Yes	425	,84	,50	,000
	Group 2	No	79	,16		
	Total		504	1,00		

Table No. 7.2: Level of importance assigned to IFRS®

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	9	1,8	1,8	1,8
	Somewhat important	53	10,5	10,6	12,4
	Important	205	40,6	40,8	53,2
	Very important	120	23,8	23,9	77,1
	Extremely important	115	22,8	22,9	100,0
	Total	502	99,4	100,0	
Missing	System	3	,6		
Total		505	100,0		

Table No. 7.3: One-sample statistics for the level of importance assigned to IFRS®

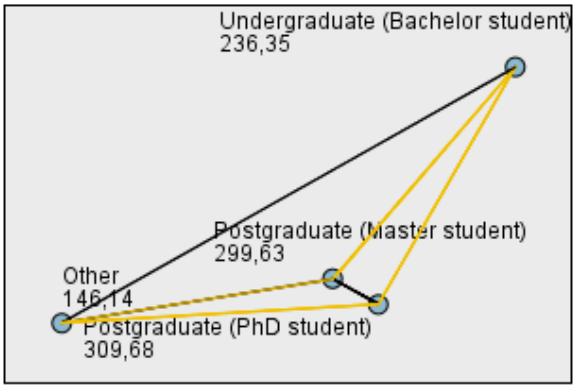
	N	Mean	Std. Deviation	Std. Error Mean
Do you think IFRS learning is important?	502	3,56	1,013	,045

Table No. 7.4: One-sample test statistics for the level of importance assigned to IFRS®

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Do you think IFRS learning is important?	12,295	501	,000	,556	,47	,64

Study cycle is a very significant differentiator between accounting students in regard to the importance they have assigned to the learning of IFRS®. There is a significant deference in the perceived importance of the IFRS® learning between the postgraduates and undergraduates (Figure 4) and no significant differences within groups of postgraduates (i.e. Master students and PhD students or Bachelor or lower level students). In general, postgraduate students assign more importance on the learning of IFRS® ($\underline{x}$> 3.9) than undergraduates ($\underline{x}$< 3.5) (Figure 5).

Pairwise Comparisons of Studying level



Each node shows the sample average rank of Studying level.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Other-Undergraduate (Bachelor student)	90,202	52,551	1,716	,086	,516
Other-Postgraduate (Master student)	153,490	54,443	2,819	,005	,029
Other-Postgraduate (PhD student)	163,539	56,057	2,917	,004	,021
Undergraduate (Bachelor student)-Postgraduate (Master student)	-63,288	17,425	-3,632	,000	,002
Undergraduate (Bachelor student)-Postgraduate (PhD student)	-73,336	21,952	-3,341	,001	,005
Postgraduate (Master student)-Postgraduate (PhD student)	-10,048	26,160	-,384	,701	1,000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Figure 4: Kruskal-Wallis test for differences in the assigned importance of IFRS® learning between different study levels

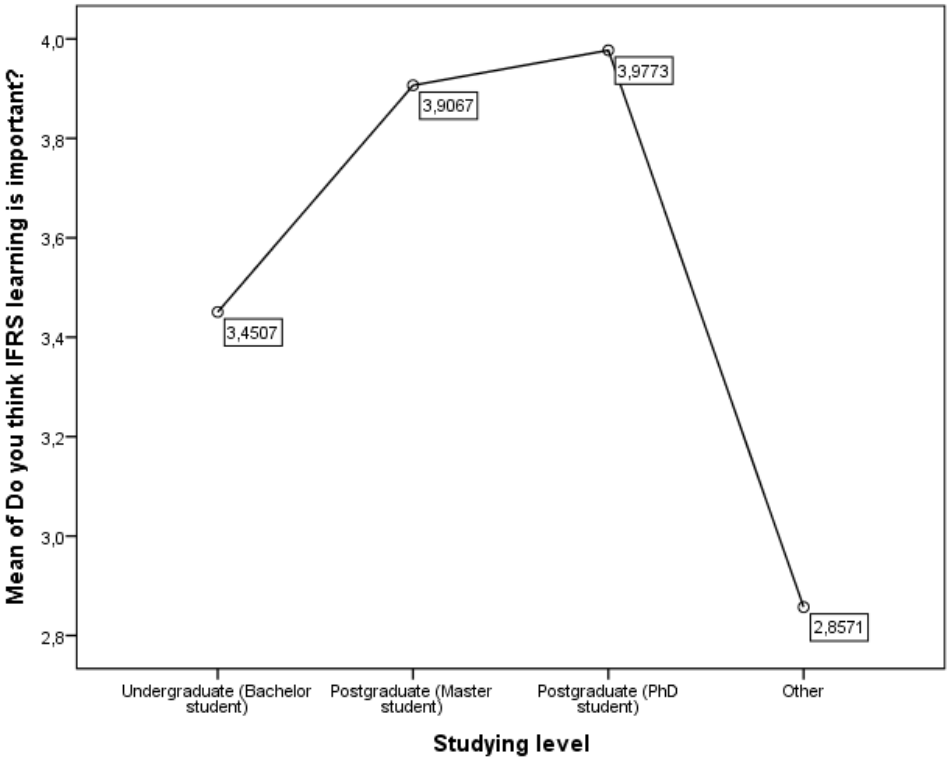


Figure 5: Means plot of importance of IFRS® learning for students from different study levels

Students' nationality also matters. Bulgarian students assigned lowest importance of IFRS® learning, Romanians – the highest (Figure No. 6). Significant differences in the perceived importance attached by the students to the IFRS® learning could be identified between Bulgarian and Turkish students, Bulgarians and Romanians, Romanians and Lithuanians, North Macedonian and Turkish students, North Macedonians and Romanians, and Lithuanian and Turkish students (Figure No. 7).

An indirect proof for the importance students assign to the IFRS® learning is that according to the most of accounting student (66.5%) IFRS® should be covered on both undergraduate and postgraduate level.

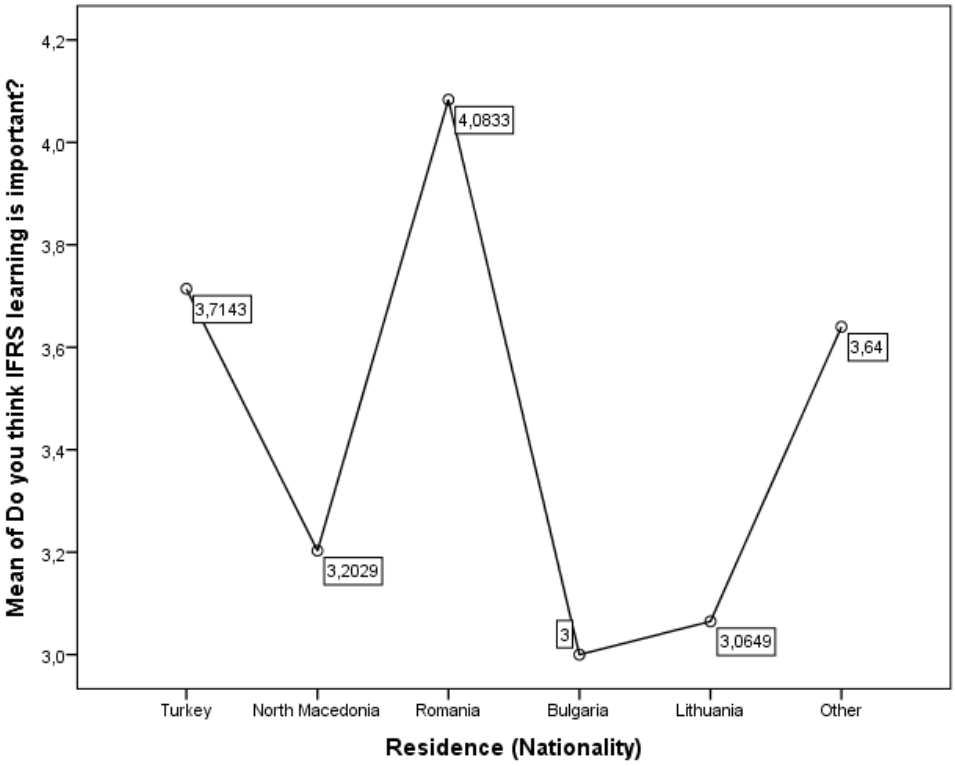
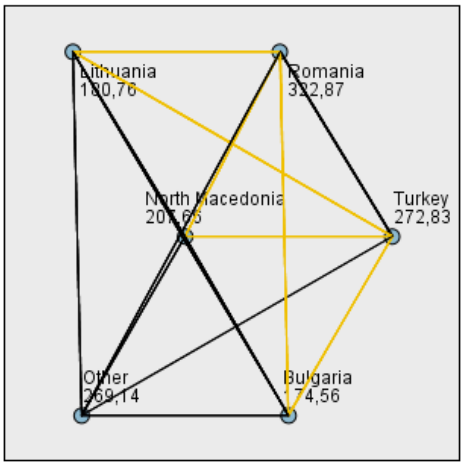


Figure 6: Means plot of importance of IFRS® learning for students from different nationalities

Pairwise Comparisons of Residence (Nationality)



Each node shows the sample average rank of Residence (Nationality).

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Bulgaria-Lithuania	-6,196	27,123	-,228	,819	1,000
Bulgaria-North Macedonia	33,095	27,646	1,197	,231	1,000
Bulgaria-Other	-94,576	35,356	-2,675	,007	,112
Bulgaria-Turkey	98,262	24,196	4,061	,000	,001
Bulgaria-Romania	148,306	26,205	5,660	,000	,000
Lithuania-North Macedonia	26,900	22,876	1,176	,240	1,000
Lithuania-Other	-88,380	31,766	-2,782	,005	,081
Lithuania-Turkey	92,067	18,560	4,960	,000	,000
Lithuania-Romania	142,110	21,112	6,731	,000	,000
North Macedonia-Other	-61,481	32,214	-1,908	,056	,845
North Macedonia-Turkey	65,167	19,317	3,373	,001	,011
North Macedonia-Romania	-115,210	21,780	-5,290	,000	,000
Other-Turkey	3,687	29,307	,126	,900	1,000
Other-Romania	53,730	30,986	1,734	,083	1,000
Turkey-Romania	-50,043	17,191	-2,911	,004	,054

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Figure 7: Kruskal-Wallis test for differences in the assigned importance of IFRS® learning between different students' nationalities

Most of the accounting students are aware of the concept of IFRS®. 70.6% of them stated that the term IFRS® was mentioned in the textbooks they study from. 68.9% of the students have been taught on the conceptual framework of the financial reporting according to IFRS® in the course of principles of accounting. For 81.6% of the observed students, their professors have used the term IFRS® when dealing with an accounting topic.

Accounting students use different learning tools and materials to study from (Figure No. 8). According to the average rating score, students have rated case studies as most useful ($\underline{x}$=4.0), followed by specific software ($\underline{x}$=3.81), videos ($\underline{x}$=3.72) and Power point presentations ($\underline{x}$=3.55).

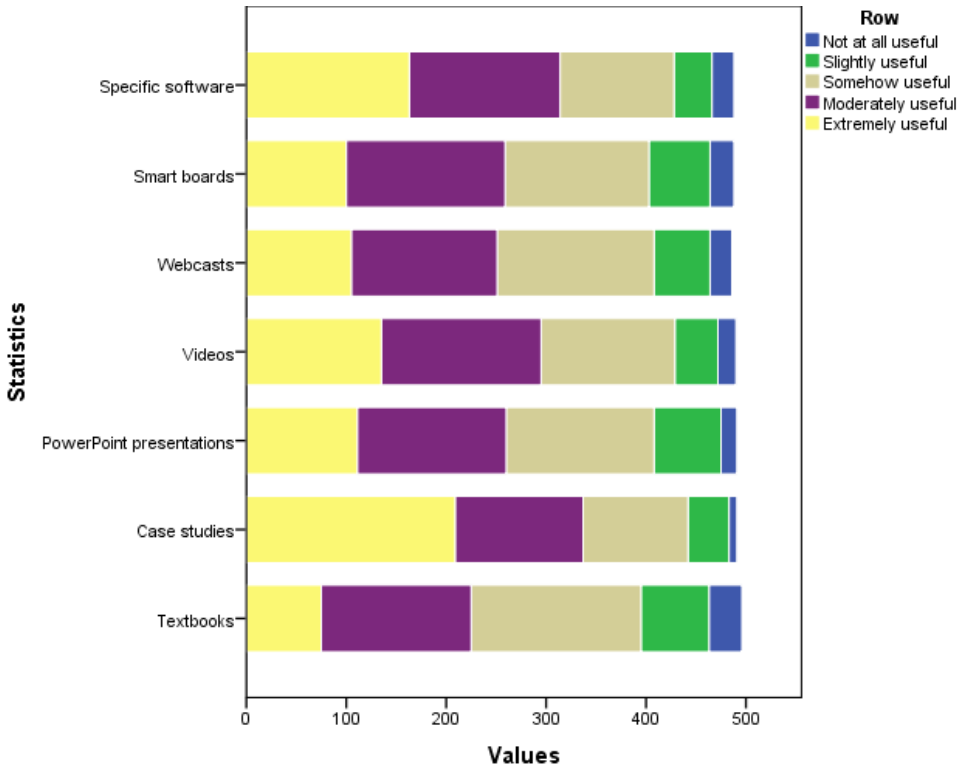


Figure 8: Distributions of scores of usefulness of the learning materials

As all distributions of the variables related with the perceived usefulness of the learning materials (p-value=0.000) are non-normal, the next part of the analysis will be based on non-parametric tests. There is a significant difference in the ratings assigned to the different learning tools and materials by the students from different study cycle (Figure 9). In general, Master students have rated case studies as more useful tool than Bachelor students and Doctoral students have rated webcasts as more useful tool than Bachelor students. These differences are statistically significant and cannot be explained with the randomness of the sample.

Nationality matters. there are significant differences in perceived usefulness of the various learning materials across nationalities (Figure 10). The observed differences between students for each type of learning materials are as follows:

- textbooks (a): Lithuania ($\underline{x}$=2.83) and Romania ($\underline{x}$=3.35); Lithuania and Turkey ($\underline{x}$=3.39); Lithuania and North Macedonia ($\underline{x}$=3.45); Lithuania and Bulgaria ($\underline{x}$=3.61);
- case studies (b): Lithuania ($\underline{x}$=3.29) and Romania ($\underline{x}$=3.47); Lithuania and Turkey ($\underline{x}$=4.23); Lithuania and Bulgaria ($\underline{x}$=3.95); Romania and Turkey; North Macedonia ($\underline{x}$=3.36) and Romania;

- PowerPoint presentations (c): Lithuania ($\underline{x}$=3.08) and Romania ($\underline{x}$=3.94); Lithuania and Bulgaria ($\underline{x}$=3.73); Lithuania and North Macedonia ($\underline{x}$=3.70); Romania and Turkey ($\underline{x}$=3.41);
- videos (d): Lithuania ($\underline{x}$=3.52) and Romania ($\underline{x}$=4.04); Romania and Turkey ($\underline{x}$=3.61);
- smartboards (e): Lithuania ($\underline{x}$=3.12) and Romania ($\underline{x}$=3.95); Lithuania and Turkey ($\underline{x}$=3.52); North Macedonia ($\underline{x}$=3.22) and Romania; Romania and Turkey;
- specific software (f): Lithuania ($\underline{x}$=3.56) and Romania ($\underline{x}$=4.44); North Macedonia ($\underline{x}$=3.25) and Romania; Romania and Turkey ($\underline{x}$=3.78); Bulgaria ($\underline{x}$=3.80) and Romania.

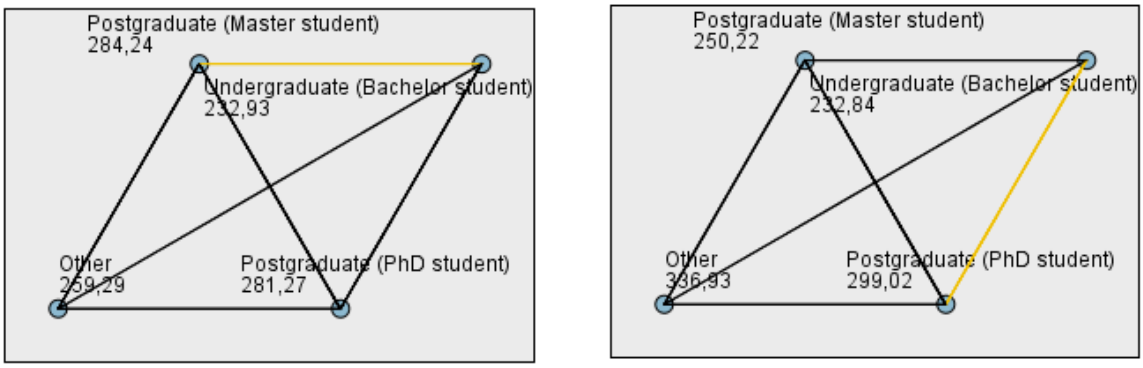


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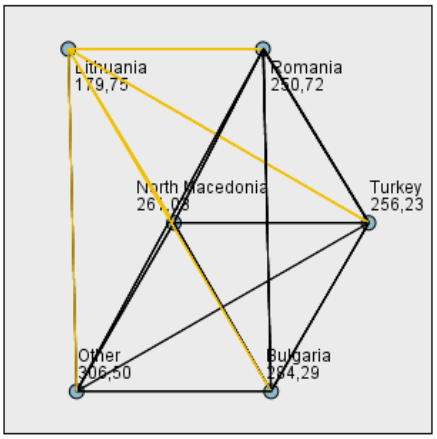
Figure 9: Pairwise comparisons in the usefulness of the learning materials between study cycles (case studies (a) and webcasts (b))



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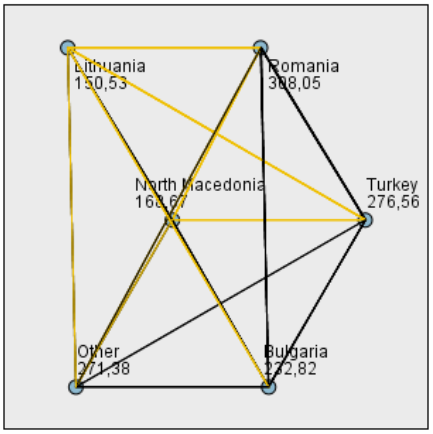

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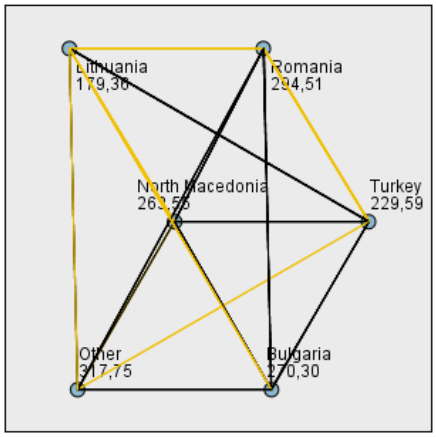

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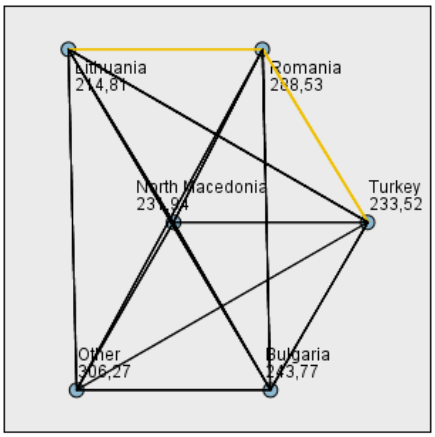

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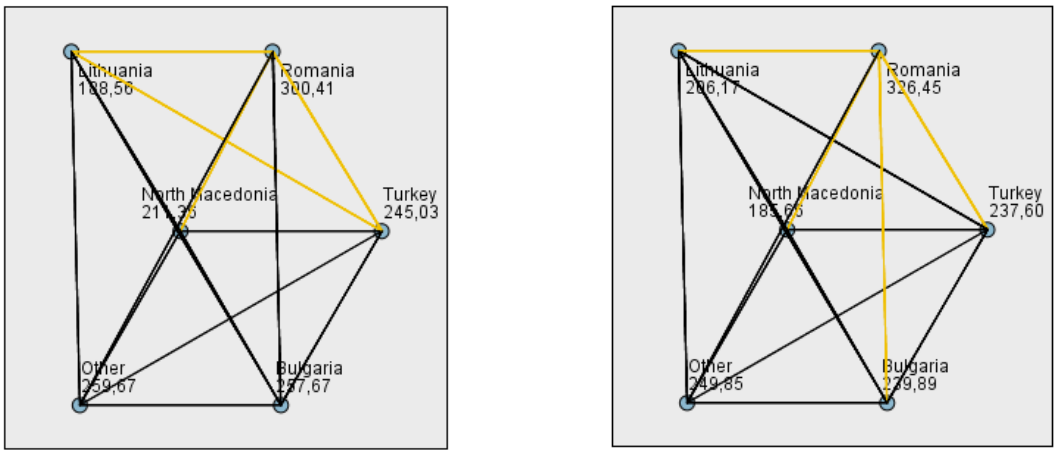

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Figure 10: Pairwise comparisons in the usefulness of the learning materials between nationalities (textbooks (a); case studies (b); PowerPoint presentations (c); videos (d); smart boards (e); specific software (f))

Accounting students experience different challenges in learning IFRS® (Figure 11). The challenge they have mentioned most frequently as a major/moderate concern is the lack of sufficient examples and exercises illustrating differences between National standards and IFRS®. Most of students have recognized it as a major concern in learning IFRS® ($\underline{x}$=3.58; Me=4.0 Mo=5.0). Another significant concern for which most of students are somewhat concerned is the lack of sufficient training opportunities ($\underline{x}$=3.47; Me=4.0 Mo=3.0). As all distributions of the variables related with the experienced challenges in learning IFRS® (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

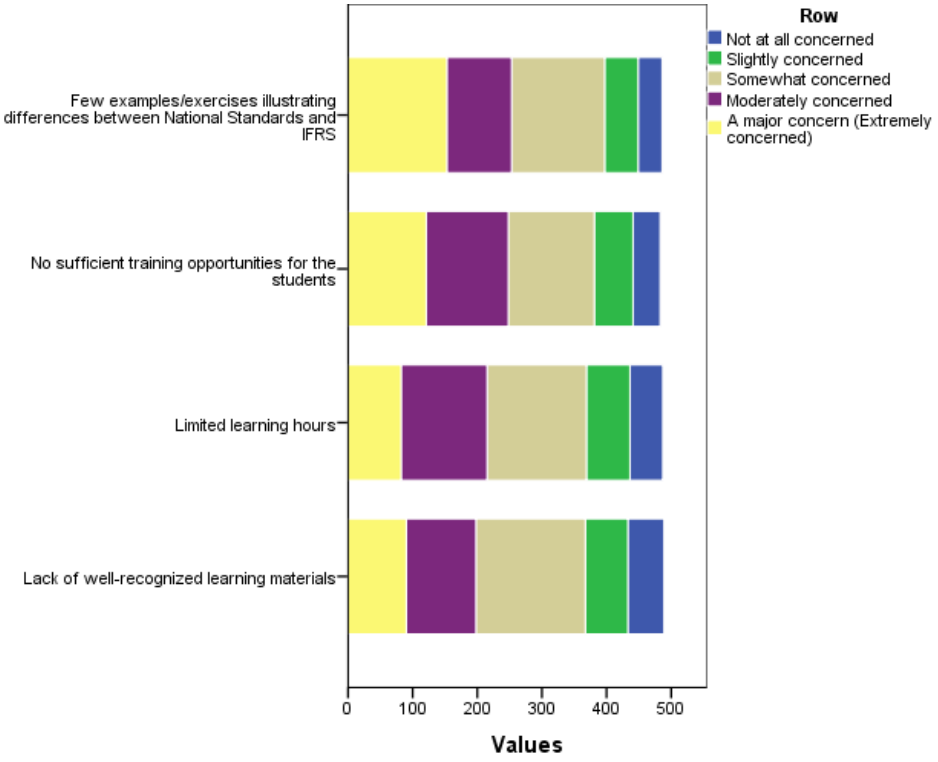


Figure 11: Distribution of scores on experienced challenges in learning IFRS®

It is interesting to point out that there is no significant relationship between the perceive challenges in learning IFRS® and students' gender. Empirical values of independence Pearson Chi-square tests confirm that there is no relationship between each of the challenges and gender (p-values > 0.05 and vary from 0.746 to 0.966). Empirical values of the independent samples Kruskal-Wallis tests show non-equal distributions of the challenges across male and female students (adj. p-values > 0.05 and vary from 0.695 to 0.767).

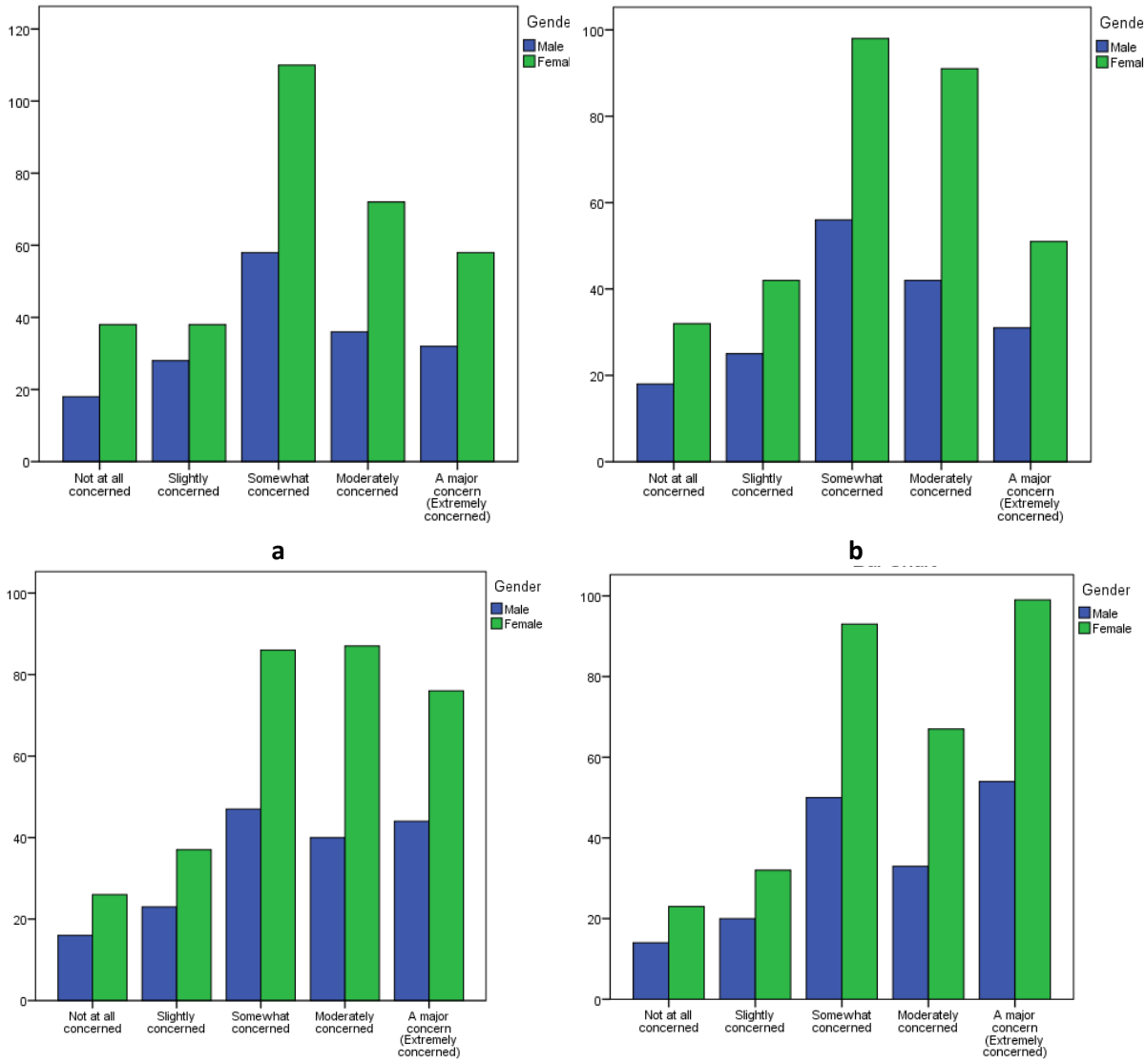
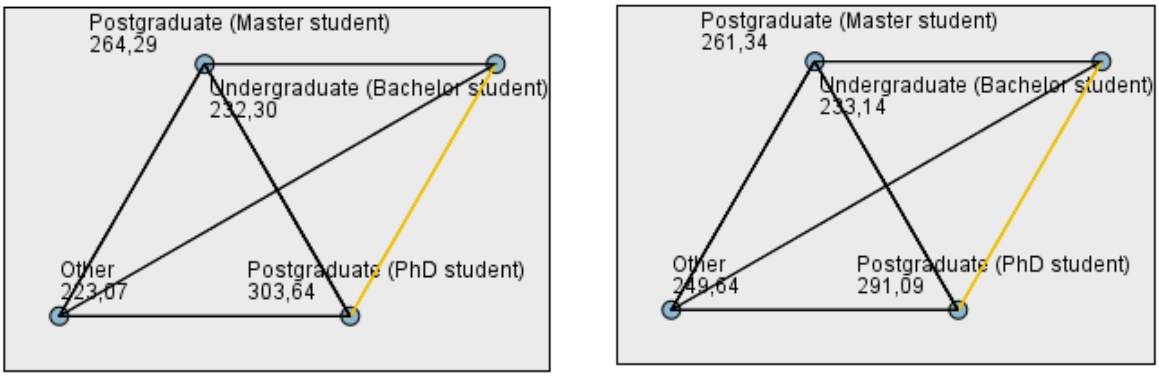


Figure 12: Clustered bar charts of challenges in learning IFRS® across gender (lack of well-recognised learning materials (a); limited learning hours (b); lack of sufficient training opportunities (c); few examples illustrating differences between NS and IFRS® (d))

Although gender is not a significant differentiator between students regarding perceived challenges in learning IFRS®, students' study cycle is. There is a significant difference between Bachelor and Doctoral students regarding perceiving limited learning hours and lack of sufficient examples illustrating differences between National standards and IFRS® as a challenge. In general, PhD students are more concerned about the limited learning hours and lack of sufficient examples illustrating differences between National standards and IFRS® in comparison with the others. The average value of the limited learning hours for the group of Doctoral students ($\underline{x}$=3.77) is significantly higher than the overall average ($\underline{x}$=3.27) and especially for the group of the Bachelor students ($\underline{x}$=3.17; Mean difference=-

0.598; p=0.01). The group average for PhD students ($\underline{x}$=3.98) regarding the lack of sufficient example/exercises illustrating differences between National standards and IFRS® is also significantly higher than the group average for Bachelor students ($\underline{x}$=3.50).



a **b**

Figure 13: Pairwise comparisons across categories of studying level (limited learning hours (a); few examples illustrating differences between NS and IFRS® (b))

Accounting students use different sources of information to keeping them up-to-date with IFRS®. In compliance with the profile of the Generation Z students, materials from Internet are the main source of information to keep accounting students updated about the IFRS® ($\underline{x}$=3.61; Me=4.0, Mo=5.0), followed by IFRS®-related books ($\underline{x}$=2.89; Me=3.0, Mo=3.0) and online learning courses ($\underline{x}$=2.86; Me=3.0, Mo=1.0).Both international ($\underline{x}$=2.53; Me=2.0, Mo=1.0) and domestic conferences ($\underline{x}$=2.49; Me=2.0, Mo=1.0) have not been perceived as a source of information ($\underline{x}$=2.86; Me=2.0, Mo=1.0). Internet materials are moderately and extremely used by 57.7% of the students and they are the information source mentioned as major most frequently by the accounting students (Figure 14).

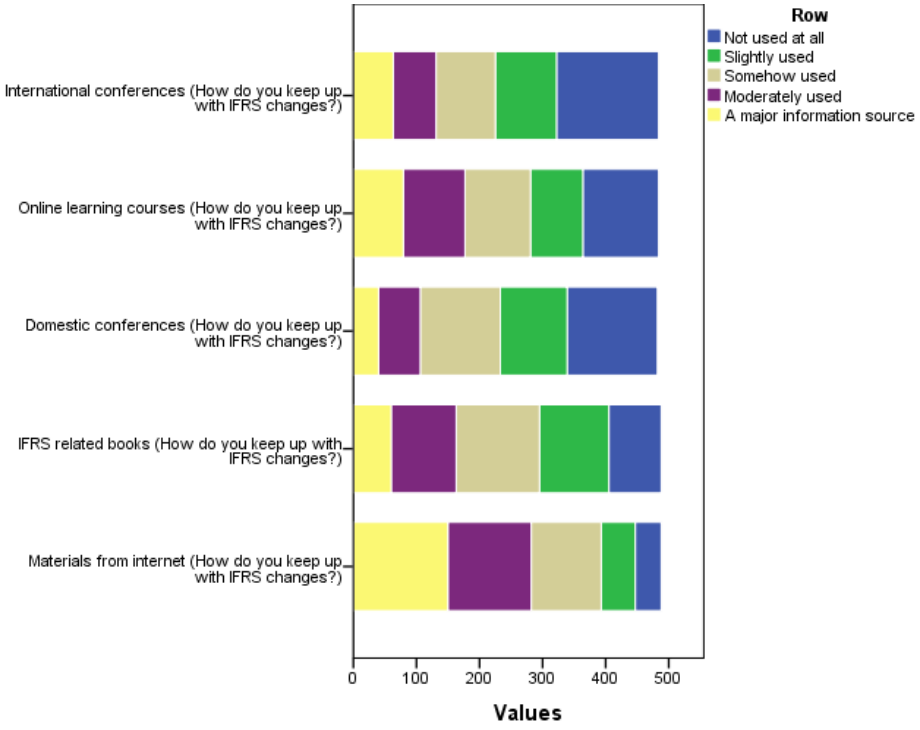
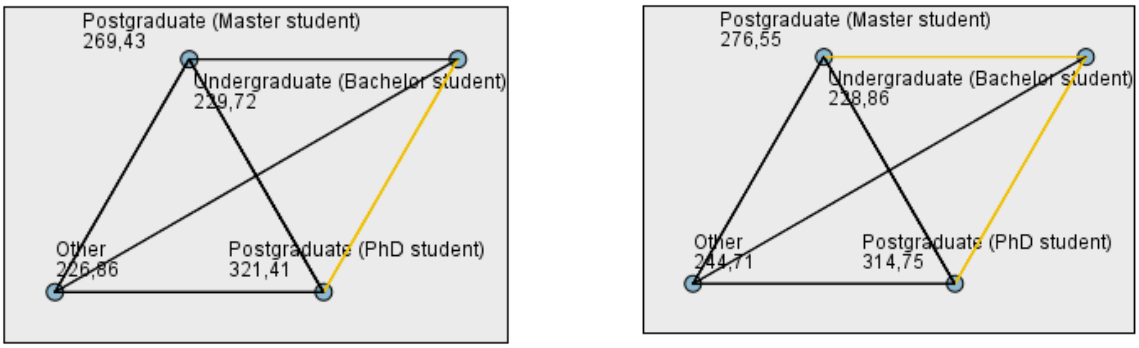


Figure 14: Distribution of scores on information sources to keeping up-to-date with IFRS®

As all distributions of the variables related with the information sources to keeping up-to-date with IFRS® (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

Students from different study cycles use different information sources to keeping them up-to-date with IFRS® (Figure 15). Materials from Internet are main information sources but they higher value for PhD students than for Bachelor students. There is a significant difference between postgraduates and undergraduates regarding IFRS®-related books. In general, Master and Doctoral students rely more on IFRS®-related books than Bachelor students.



a **b**

Figure 15: Pairwise comparisons across categories of studying level (materials from internet (a); IFRS®-related books (b))

Like to the perceived challenges in learning IFRS®, gender is not a significant differentiator between accounting students regarding used information sources to keeping up-to-date with IFRS®. Empirical values of independence Pearson Chi-square tests confirm that there is no relationship between each of the challenges and gender (p-values > 0.05 and vary from 0.123 to 0.936).

1.2. Digital learning perceptions of students in HEIs

Third part of the questionnaire includes 20 five-point statements about students' perceptions towards digital learning. The questions were organised in 6 topics labeled as performance expectancy, effort expectancy, social influence, intension to use digital learning, learners' creativity and mobility.

First topic is related with students' performance expectancy. The section includes 3 five-point statements. In general, Generation Z students have high performance expectancy regarding digital learning (Tables No. 8.1-8.2). The average student believes that digital learning will facilitate their future career development ($\underline{x}$= 3.72; Mo=5.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=13.395; df=489; p-value<0.05), help them comprehend the course content better ($\underline{x}$= 3.73; Mo=5.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=13.096; df=484; p-value<0.05), and enhance their teamwork with the classmates on group work ($\underline{x}$= 3.48; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=8.49; df=490; p-value<0.05).

More than 50% of the students have agreed or strongly agreed with each of the three statements (Figure No. 16). 64.4% of the students believe that digital learning will facilitate their future career development, 52.3% of them think that digital learning will enhance their teamwork with the classmates on group work, and for 62.4% of the Generation Z students digital learning will help them comprehend the course content better.

As all distributions of the variables related with the students' performance expectancy (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.
It is important to highlight that, students from different study cycles do not differ in their perceptions towards digital learning performance expectancy. There are no significant differences (all adjusted p-values are above 0.05) in the degree of agreement with each of the statements between undergraduates and postgraduates (Figure No. 17).

Table N. 8.1: Descriptive statisticsperformance expectancy section

		Digital learning would help me comprehend the course content better	Digital learning will enhance my teamwork with my classmates on group work	I think digital learning will facilitate my career development
N	Valid	495	491	490
	Missing	10	14	15
Mean		3,73	3,48	3,72
Median		4,00	4,00	4,00
Mode		5	4	5

Table No. 8.2: One-sample t-tests for performance expectancy section

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Digital learning would help me comprehend the course content better	13,096	494	,000	,727	,62	,84
Digital learning will enhance my teamwork with my classmates on group work	8,490	490	,000	,479	,37	,59
I think digital learning will facilitate my career development	13,395	489	,000	,718	,61	,82

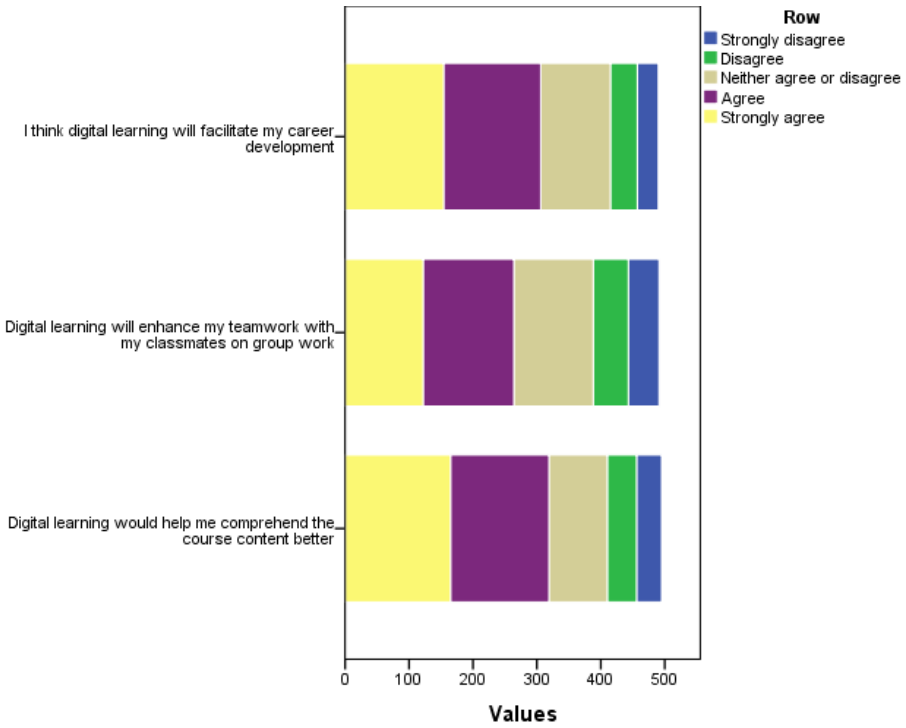
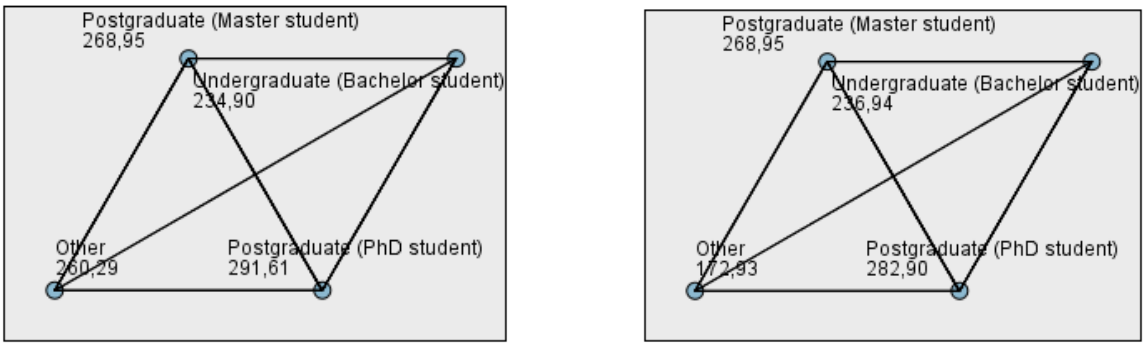


Figure 16: Distribution of scores on performance expectancy



a **b**

Figure 17: Pairwise comparisons across categories of studying level (enhance my teamwork with my classmates on group work(a); facilitate my career development (b))

Similar conclusion could be made for gender. There are no significant differences between female and male students in their personal way of thinking and perceptions regarding distance learning usefulness and effects on career development, teamwork, and comprehension of the course content. All empirical p-values of Kruskal-Wallis tests for equality of distributions of performance expectancy statements across gender categories (Figure No. 18), as well as of Pearson Chi-square tests for independence of gender and performance expectancy (Asymp. p-values vary from 0.167 to 0.296) are non-significant and above the critical value of 0.05.

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Digital learning would help me comprehend the course content better is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,172	Retain the null hypothesis.
2	The distribution of Digital learning will enhance my teamwork with my classmates on group work is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,077	Retain the null hypothesis.
3	The distribution of I think digital learning will facilitate my career development is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,238	Retain the null hypothesis.

Figure 18: Kruskal-Wallis tests (performance expectancy across gender categories)

Second topic concerns students' expectations about the efforts they will spent on digital learning. The section includes 2 five-point statements. In general, Generation Z students do not have high effort expectancy regarding digital learning (Tables No. 9.1-9.2). The average student perceives the usage of digital learning as being simple ($\underline{x}$= 3.74; Mo=4.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=14.913; df=494; p-value<0.05) and do not afraid to use any digital learning application if they get some support on how to use it ($\underline{x}$= 3.89; Mo=5.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=16.977; df=489; p-value<0.05).

Table N. 9.1: Descriptive statistics effort expectancy section

		I would say using digital learning is simple	I am eager to make use of a digital learning application if I get some help on how to use it
N	Valid	495	490
	Missing	10	15
Mean		3,74	3,89
Median		4,00	4,00
Mode		4	5

Table No. 9.2: One-sample t-tests for effort expectancy section

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
I would say using digital learning is simple	14,913	494	,000	,737	,64	,83
I am eager to make use of a digital learning application if I get some help on how to use it	16,977	489	,000	,892	,79	1,00

More than 50% of the students have agreed or strongly agreed with both statements related with perceived effort performance of the distance learning (Figure No. 19). 63.9% of the students think that using digital learning is simple and 69.6% of the Generation Z students are eager to make use of a digital learning application if they get some help on how to use it.

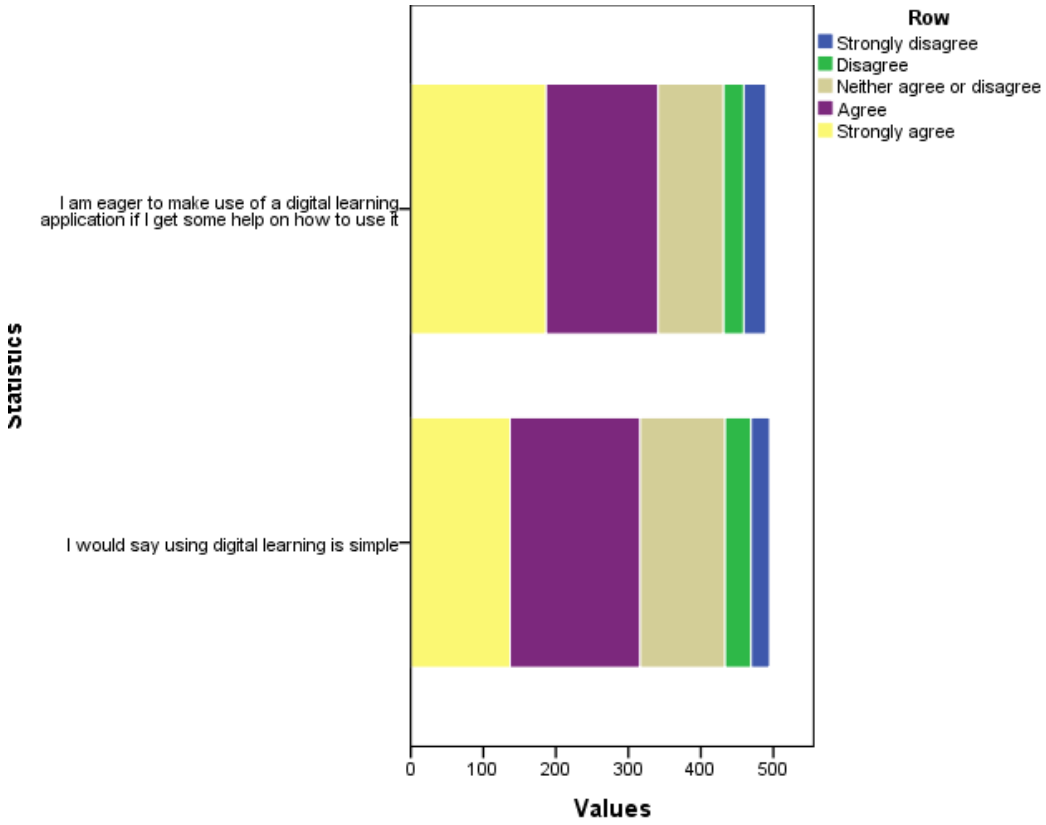


Figure 19: Distribution of scores on effort expectancy

As all distributions of the variables related with the students' effort expectancy (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

Account students from different study cycles and gender do not differ in their perceptions towards digital learning effort expectancy. There are no significant differences in the degree of agreement with each of the statements between undergraduates and postgraduates (Figure No. 20), as well as between male and female student (Figure No. 21).

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of I would say using digital learning is simple is the same across categories of Studying level.	Independent-Samples Kruskal-Wallis Test	,138	Retain the null hypothesis.
2	The distribution of I am eager to make use of a digital learning application if I get some help on how to use it is the same across categories of Studying level.	Independent-Samples Kruskal-Wallis Test	,171	Retain the null hypothesis.

Figure 20: Kruskal-Wallis tests (effort expectancy across study cycle categories)

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of I would say using digital learning is simple is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,760	Retain the null hypothesis.
2	The distribution of I am eager to make use of a digital learning application if I get some help on how to use it is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,073	Retain the null hypothesis.

Figure 21: Kruskal-Wallis tests (effort expectancy across gender categories)

Third topic of the questionnaire refers social influence or the acceptance the accounting students receive from different social groups. The section includes 3 five-point statements. In general, Generation Z students receive social acceptance for using digital learning (Tables No. 10.1-10.2). The average student agrees that the importance of digital learning is emphasised from the academician in their HEIs ($\underline{x}$= 3.43; Mo=3.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=7.802; df=487; p-value<0.05), individuals whom they regard as important support them to use digital learning ($\underline{x}$= 3.57; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=10.595; df=488; p-value<0.05), and their friends motivate them to use digital learning ($\underline{x}$= 3.30; Mo=3.0; Me=3.0; $\underline{x}$ ≠3.0; t-test=5.324; df=490; p-value<0.05).

Table N. 10.1: Descriptive statistics social influence section

		My friends will motivate me to use digital learning	Individuals whom I regard as important would support me to use digital learning	The importance of digital learning is emphasized from the academicians at my university
N	Valid	491	489	488
	Missing	14	16	17
Mean		3,30	3,57	3,43
Median		3,00	4,00	4,00
Mode		3	4	3

Table No. 10.2: One-sample t-tests for social influence section

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
My friends will motivate me to use digital learning	5,324	490	,000	,295	,19	,40
Individuals whom I regard as important would support me to use digital learning	10,595	488	,000	,566	,46	,67
The importance of digital learning is emphasized from the academicians at my university	7,802	487	,000	,426	,32	,53

53.3% of the students think that individuals whom they regard as important support them to use digital learning. According to 44.8% of them their friends will motivate them to use digital learning. For 50.6% the importance of digital learning is emphasised from the academician in their universities (Figure No. 22).

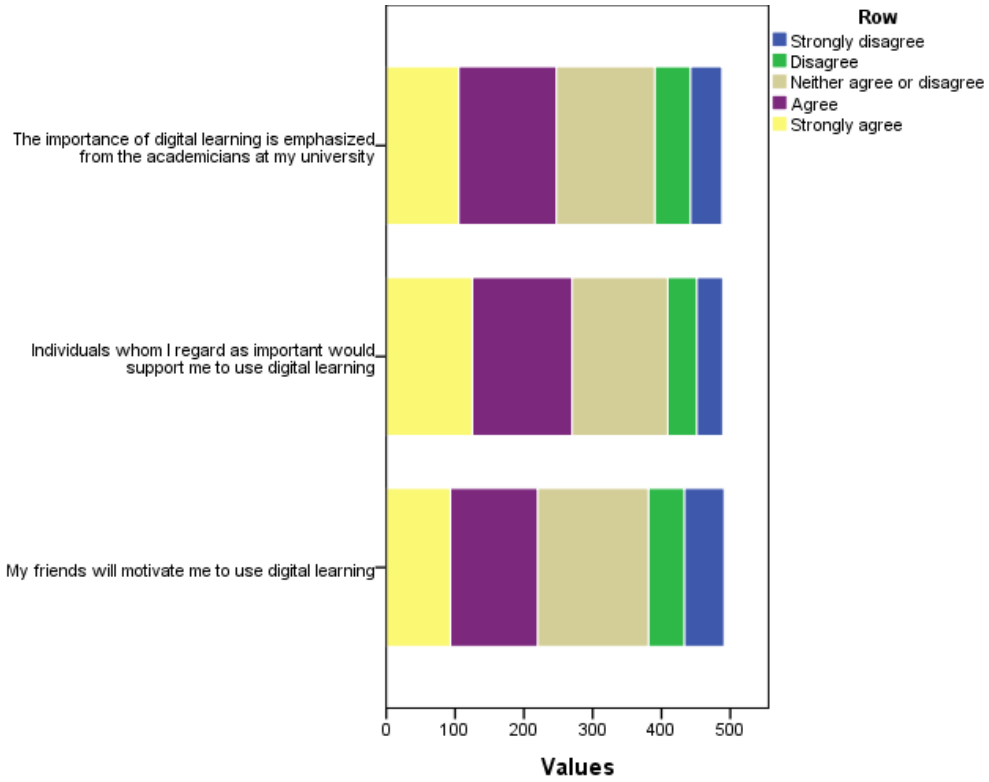


Figure 22: Distribution of scores on social influence

As all distributions of the variables related with the students' social influence (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.
Accounting students from different study cycles and gender do not differ regarding social influence. There are no significant differences in the degree of agreement with each of the statements between undergraduates and postgraduates (Figure No. 23), as well as between male and female students (Figure No. 24).

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of I would say using digital learning is simple is the same across categories of Studying level.	Independent-Samples Kruskal-Wallis Test	,138	Retain the null hypothesis.
2	The distribution of I am eager to make use of a digital learning application if I get some help on how to use it is the same across categories of Studying level.	Independent-Samples Kruskal-Wallis Test	,171	Retain the null hypothesis.

Figure 23: Kruskal-Wallis tests (social influence across study cycle categories)

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of I would say using digital learning is simple is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,760	Retain the null hypothesis.
2	The distribution of I am eager to make use of a digital learning application if I get some help on how to use it is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,073	Retain the null hypothesis.

Figure 24: Kruskal-Wallis tests (social influence across gender categories)

Fourth topic of the questionnaire concerns students' intention to use digital learning. The section includes 4 five-point statements. The average student believes that they will improve themselves more in digital learning applications ($\underline{x}$= 3.93; Mo=5.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=19.303; df=489; p-value<0.05), plans to make use of digital learning technologies for their studies ($\underline{x}$= 3.89; Mo=4.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=18.700; df=491; p-value<0.05), prefers to use digital learning over other learning schemes ($\underline{x}$= 3.49; Mo=4.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=8.706; df=489; p-value<0.05), and is somehow neutral regarding the necessity to learn very complex programmes in order to use digital learning ($\underline{x}$= 3.17; Mo=3.0; Me=3.0; $\underline{x} \neq 3.0$; t-test=3.061; df=487; p-value<0.05) (Table No. 11.1-11.2).

69.1% of accounting students plan to make use of digital learning technologies for their studies, 70.6% of them believe that they will improve themselves more in digital learning applications, 53.5% of the students prefer to use digital learning over other learning schemes, and according to 40.2% of them digital learning requires to learn very complex programmes (Figure 25).

Table No. 11.1: Descriptive statistics for intention to use digital learning section

		I plan to make use of digital learning technologies for my studies	I believe that I will improve myself more in digital learning applications	I prefer to use digital learning over other learning schemes	Digital learning requires learning very complex programs
N	Valid	492	490	490	488
	Missing	13	15	15	17
Mean		3,89	3,93	3,49	3,17
Median		4,00	4,00	4,00	3,00
Mode		4	5	4	3

Table No. 11.2: One-sample t-tests for intention to use digital learning section

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
I plan to make use of digital learning technologies for my studies	18,700	491	,000	,894	,80	,99
I believe that I will improve myself more in digital learning applications	19,303	489	,000	,929	,83	1,02
I prefer to use digital learning over other learning schemes	8,706	489	,000	,490	,38	,60
Digital learning requires learning very complex programs	3,061	487	,002	,168	,06	,28

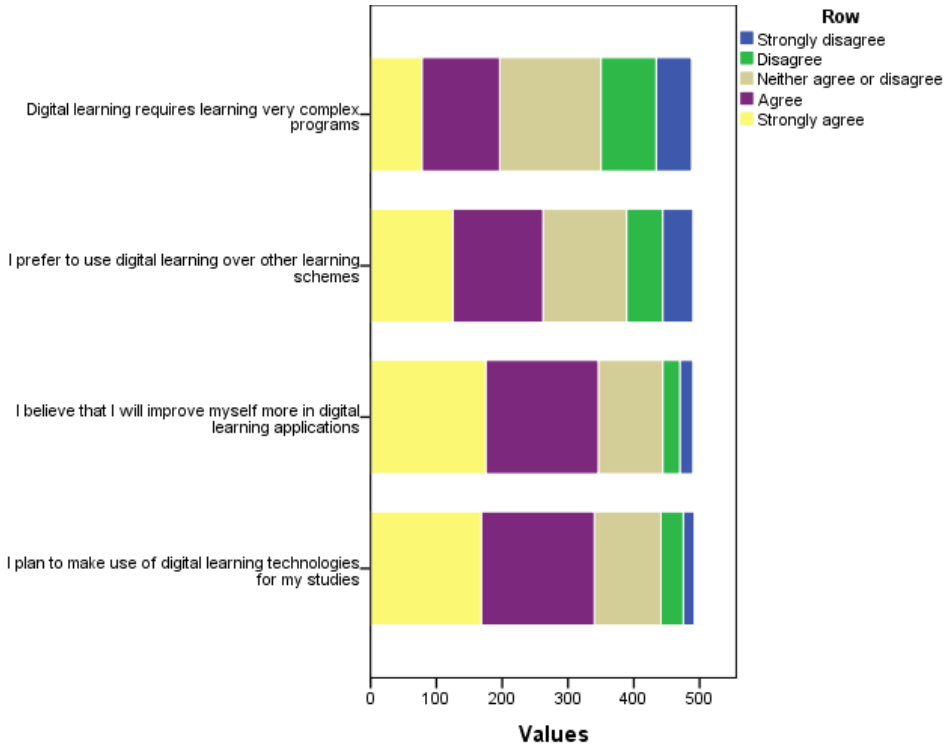


Figure 25: Distribution of scores on intention to use digital learning

As all distributions of the variables related with the students' intention to use digital learning (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests. Generation Z students from different study cycles and gender do not differ regarding their intention to use digital learning. There are no significant differences in the intention to use digital learning between undergraduates and postgraduates (Figure No. 26), as well as between male and female students (Figure No. 27).

Learner's creativity is measured by 5 statements. The average Generation Z student is open to use digital applications to obtain course materials ($\underline{x}$= 4.03; Mo=5.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=22.011; df=490; p-value<0.05), work together with their classmates ($\underline{x}$= 3.87; Mo=4.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=17.157; df=488; p-value<0.05), use new digital applications ($\underline{x}$= 3.85; Mo=4.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=16.898; df=489; p-value<0.05), use digital learning applications to complete their tests and assignments ($\underline{x}$= 3.64; Mo=4.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=12.203; df=489; p-value<0.05), and will take pleasure to use their portable devices for digital learning applications ($\underline{x}$= 3.87; Mo=4.0; Me=4.0; $\underline{x} \neq 3.0$; t-test=17.173; df=488; p-value<0.05) (Table No. 12.1-12.2).

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of I plan to make use of digital learning technologies for my studies is the same across categories of Studying level.	Independent-Samples Kruskal-Wallis Test	,079	Retain the null hypothesis.
2	The distribution of I believe that I will improve myself more in digital learning applications is the same across categories of Studying level.	Independent-Samples Kruskal-Wallis Test	,088	Retain the null hypothesis.
3	The distribution of I prefer to use digital learning over other learning schemes is the same across categories of Studying level.	Independent-Samples Kruskal-Wallis Test	,166	Retain the null hypothesis.
4	The distribution of Digital learning requires learning very complex programs is the same across categories of Studying level.	Independent-Samples Kruskal-Wallis Test	,389	Retain the null hypothesis.

Figure 26: Kruskal-Wallis tests (intention to use digital learning across study cycle categories)

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of I plan to make use of digital learning technologies for my studies is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,901	Retain the null hypothesis.
2	The distribution of I believe that I will improve myself more in digital learning applications is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,887	Retain the null hypothesis.
3	The distribution of I prefer to use digital learning over other learning schemes is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,584	Retain the null hypothesis.
4	The distribution of Digital learning requires learning very complex programs is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,078	Retain the null hypothesis.

Figure 27: Kruskal-Wallis tests (intention to use digital learning across gender categories)

Table No. 12.1: Descriptive statistics for learner's creativity section

		I am enthusiastic to complete my tests and assignments using Digital learning applications	I am eager to use new digital applications	I would take pleasure in using my portable devices for digital learning application	I am willing to use digital applications to obtain course materials	I am willing to work together with my classmates
N	Valid	490	490	489	491	489
	Missing	15	15	16	14	16
Mean		3,64	3,85	3,87	4,03	3,87
Median		4,00	4,00	4,00	4,00	4,00
Mode		4	4	4	5	4

Table No. 12.2: One-sample t-tests for learner's creativity section

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
I am enthusiastic to complete my tests and assignments using Digital learning applications	12,203	489	,000	,641	,54	,74
I am eager to use new digital applications	16,898	489	,000	,849	,75	,95
I would take pleasure in using my portable devices for digital learning application	17,173	488	,000	,867	,77	,97

I am willing to use digital applications to obtain course materials	22,011	490	,000	1,033	,94	1,12
I am willing to work together with my classmates	17,157	488	,000	,873	,77	,97

75.8% of Generation Z students are open to use digital applications to obtain course materials, 70.6% of them – to work together with their classmates, 68.6%– to use new digital applications, 60.8% – to use digital learning applications to complete their tests and assignments, and 69.6% will take pleasure to use their portable devices for digital learning applications (Figure 28).

As all distributions of the variables related with the learners' creativity (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.
Generation Z students from different study cycles do not differ regarding their creativity. There are no significant differences (all p-values or adjusted p-values are above 0.05) in the degree of agreement with each of the statements between undergraduates and postgraduates (Figure No. 29) but male and female students defer significantly (p-value=0.007) regarding their readiness to use digital applications to obtain course materials (Figure 30). The average female student is significantly more open to use digital applications to obtain course materials than the average male student ($\underline{x}$= 4.13 for females and $\underline{x}$= 3.86 for males, F-test=7.538, p-value=0.006).

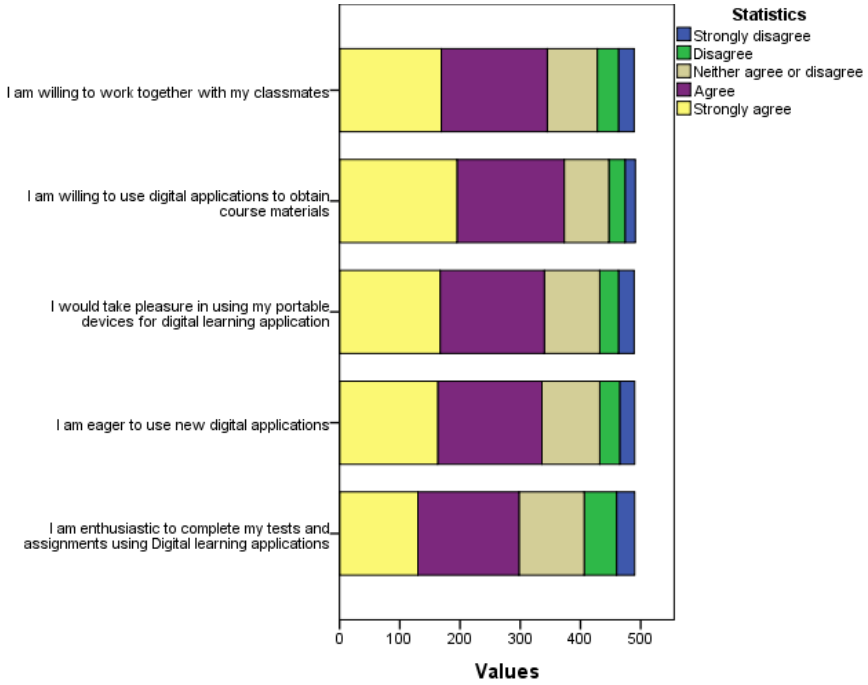


Figure 28: Distribution of scores on learner's creativity

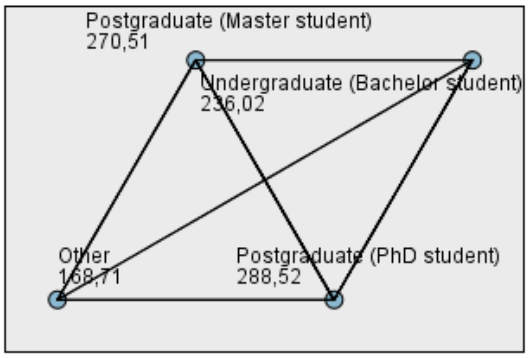


Figure 29: Pairwise comparisons (be eager to use new digital applications across study cycles)

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of I am enthusiastic to complete my tests and assignments using Digital learning applications is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,377	Retain the null hypothesis.
2	The distribution of I am eager to use new digital applications is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,053	Retain the null hypothesis.
3	The distribution of I would take pleasure in using my portable devices for digital learning application is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,073	Retain the null hypothesis.
4	The distribution of I am willing to use digital applications to obtain course materials is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,007	Reject the null hypothesis.
5	The distribution of I am willing to work together with my classmates is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,128	Retain the null hypothesis.

Figure 30: Kruskal-Wallis tests (learner's creativity across gender categories)

Last section of the questionnaire refers learner's mobility which is measured by 3 statements. The average Generation Z student believes that digital learning benefit them as it makes them use their time effectively for learning ($\underline{x}$= 3.93; Mo=5.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=17.781; df=491; p-value<0.05), provides easier understanding of the topics because they can listen to the courses more times ($\underline{x}$= 4.15; Mo=5.0; Me=5.0; $\underline{x}$ ≠3.0; t-test=23.637; df=490; p-value<0.05), and higher independence because they can continue their courses anywhere and anytime ($\underline{x}$= 4.10; Mo=5.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=23.229; df=491; p-value<0.05) (Table No. 13.1-13.2).

Table No. 13.1: Descriptive statistics for learner's mobility section

		I can continue studying my courses anywhere and anytime	Digital learning will make me use my time effectively for learning	With digital learning, the ability to listen to the courses over and over makes it easier to understand the topics
N	Valid	492	492	491
	Missing	13	13	14
Mean		4,10	3,93	4,15
Median		4,00	4,00	5,00
Mode		5	5	5

Table No. 13.2: One-sample t-tests for learner's mobility section

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
I can continue studying my courses anywhere and anytime	23,229	491	,000	1,098	1,00	1,19
Digital learning will make me use my time effectively for learning	17,781	491	,000	,935	,83	1,04
With digital learning, the ability to listen to the courses over and over makes it easier to understand the topics	23,637	490	,000	1,155	1,06	1,25

71.5% of Generation Z students believe that digital learning makes them use their time effectively for learning. According to 77.6% of students they can easily understand the topics because they can listen to the courses over and over. 69.6% of them can continue their courses anywhere and anytime (Figure 31).

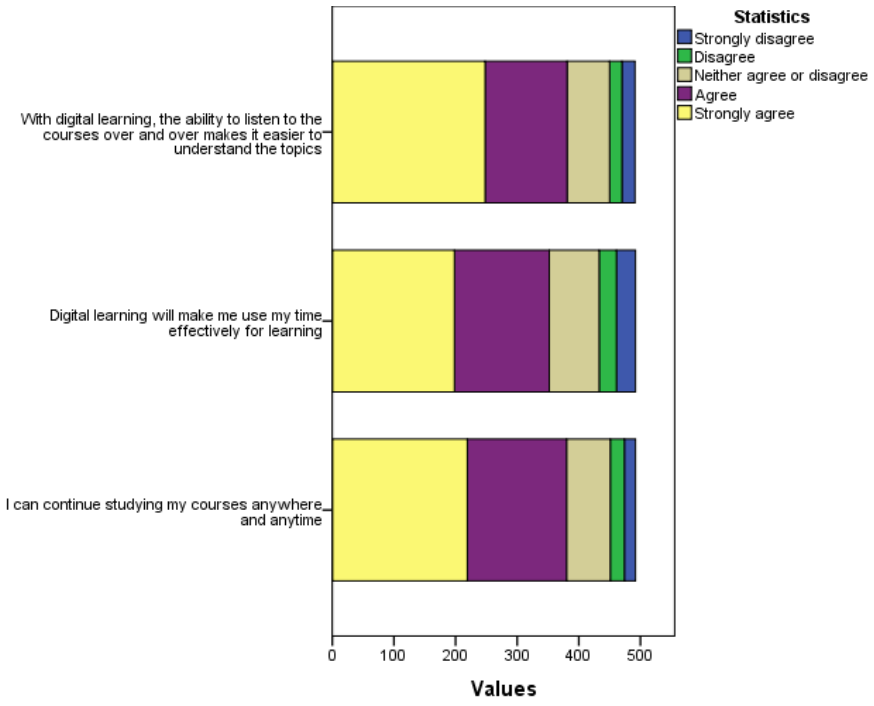


Figure 31: Distribution of scores on learner's mobility

As all distributions of the variables related with the learners' mobility (p-value=0.000) are non-normal, the next part of the analysis will be based on non-parametric tests.

Generation Z students from different study cycles do not differ regarding their creativity. There are no significant differences (all p-values or adjusted p-values are above 0.05) in the degree of agreement with each of the statements between undergraduates and postgraduates (Figure No. 32) but male and female students defer significantly (p-value=0.007) (Figure 33). The perceived learner's mobility is significant higher for female than for male students.

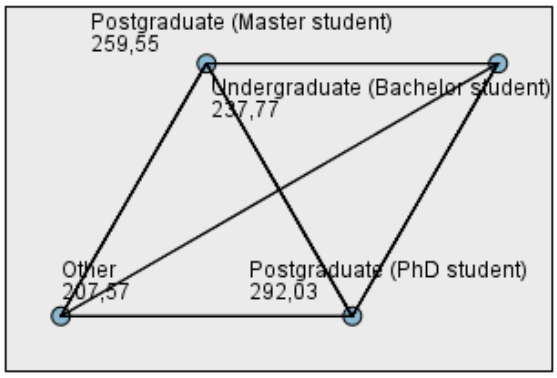


Figure 32: Pairwise comparisons (makes it easier to understand the topics across study cycles)

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of I can continue studying my courses anywhere and anytime is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,000	Reject the null hypothesis.
2	The distribution of Digital learning will make me use my time effectively for learning is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,008	Reject the null hypothesis.
3	The distribution of With digital learning, the ability to listen to the courses over and over makes it easier to understand the topics is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	,018	Reject the null hypothesis.

Figure 33: Kruskal-Wallis tests (learner's mobility across gender categories)

1.3. Reliability analysis of the questionnaire targeted to Generation Z students

Reliability of the questionnaires targeted towards Generation Z students is evaluated by computing Cronbach alpha coefficient for each of set of scale items and KR20 coefficient for the binary measured sets.

For the questionnaire which is focused on the measurement of students' perceptions towards IFRS®, the reliability for the observed sets is as follow:

- Cronbach alpha coefficient for the 2-item scale 'perceived degree of students' expertise', which is represented by the perceived knowledge and perceived practical experience, is 0.622. The value is less than 0.7 but still acceptable as it is more than 0.5.
- Cronbach alpha coefficient for the 7-item scale 'perceived usefulness of learning tools' is 0.864 which is more than the recommended value of 0.7.
- Cronbach alpha coefficient for the 4-item scale 'perceived challenges in learning' is 0.868 which meets the requirements of the methodologists as it is more than 0.7.
- Cronbach alpha coefficient for the 4-item scale 'perceived challenges in learning' is 0.868 which meets the standards for internal consistency.
- Cronbach alpha coefficient for the 5-item scale 'keep up with IFRS® changes' is 0.826 which exceeds the recommended value of 0.7.
- KR20 coefficient for the 5-item binary measured variable 'incorporation of IFRS® in accounting curricula' is 0.703 which exceeds the threshold value of 0.7 for internal consistency.

For the questionnaire which is focused on the measurement of students' perceptions towards digital learning, the reliability for the observed sets is as follow:

- Cronbach alpha coefficient for the 3-item scale 'performance expectancy' is 0.889 which is more than the recommended value of 0.7.
- Cronbach alpha coefficient for the 2-item scale 'effort expectancy' is 0.670. The value is less than 0.7 but it is acceptable.
- Cronbach alpha coefficient for the 3-item scale 'social influence' is 0.830 which meets the requirements of the methodologists as it is more than 0.7.
- Cronbach alpha coefficient for the 4-item scale 'intention to use digital learning' is 0.808 which meets the standards for internal consistency.
- Cronbach alpha coefficient for the 5-item scale 'learner creativity' is 0.897 which exceeds the recommended value of 0.7.
- Cronbach alpha coefficient for the 3-item scale 'learner creativity' is 0.853 and it is more than acceptable as it exceeds the threshold value of 0.7.

The overall conclusion is that the questionnaires targeted towards Generation Z students are reliable.

2. Academicians in HEIs and their perceptions towards IFRS® and digital learning

First part of the questionnaire includes 8 questions about academicians' demographics and their IFRS® background. The data sample consists of 187 accounting academicians distributed between the university-partners as follow: 15 academicians who deliver IFRS®-related courses in Romania, 37 in Bulgaria, 22 in North Macedonia, 98 in Turkey, and 15 in Lithuania. 53.5% of the responded academicians were males and the rest were females (Table No. 1).

Table No. 1: Gender profile of the academicians

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	100	53,5	53,5	53,5
	Female	87	46,5	46,5	100,0
	Total	187	100,0	100,0	

Regarding their nationality, 52.4% of the academicians were Turkish, 19.8% Bulgarians, 8.0% Lithuanians, 8.0% Romanians, and 11.8% North Macedonians (Table No. 2).

Table No. 2: Nationality profile of the academicians

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Turkey	98	52,4	52,4	52,4
	North Macedonia	22	11,8	11,8	64,2
	Romania	15	8,0	8,0	72,2
	Bulgaria	37	19,8	19,8	92,0
	Lithuania	15	8,0	8,0	100,0
	Total	187	100,0	100,0	

Most of the academicians (32.3%) covered by the surveys were Associate Professors, 28.5% of them were Professors, and 35.5% of them were with lower academic rank (Lecturers – 17.2% and Assistant Professors – 18.3%, others – 3.8%) (Table No. 3).

Regarding their seniority in teaching accounting courses, 29.4% of the academicians were junior with less than 10 years of experience, 41.2% were intermediate with between 10 and 20 years of experience in teaching accounting courses, and 29.4% were senior with more than 20 years of experience (Table No. 4).

87.7% of academicians work for a public university, 11.8% - private. One academician (0.5%) was from other type of academic institutions.

Table No. 3: Academic rank of the academicians

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Professor	53	28,3	28,5	28,5
	Associate Professor	60	32,1	32,3	60,8
	Lecturer	32	17,1	17,2	78,0
	Assistant Professor	34	18,2	18,3	96,2
	Other	7	3,7	3,8	100,0
	Total	186	99,5	100,0	
Missing	System	1	,5		
Total		187	100,0		

Table No. 4: Years of experience teaching accounting courses in higher education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 5 years	20	10,7	10,7	10,7
	6-10 years	35	18,7	18,7	29,4
	11-15 years	36	19,3	19,3	48,7
	16-20 years	41	21,9	21,9	70,6
	More than 20 years	55	29,4	29,4	100,0
	Total	187	100,0	100,0	

Most of the academicians who have completed the questionnaire were knowledgeable on IFRS® and experienced in their practical implementation. 87.1% defined themselves as reasonably knowledgeable (44.9%), very knowledgeable (32.6%) and experts (9.6%) in IFRS®. The average academician is knowledgeable in IFRS® ($\underline{x}$= 3.39; Mo=3.0; Me=3.0) and it is significantly more than reasonable ($\underline{x} \neq 3.0$; t-test=6.243; df=186; p-value<0.05).

Table No. 5.1: Degree of knowledge on IFRS® topic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No knowledge at all	1	,5	,5	,5
	Some knowledge	23	12,3	12,3	12,8
	Reasonably knowledgeable	84	44,9	44,9	57,8
	Very knowledgeable	61	32,6	32,6	90,4
	Expert	18	9,6	9,6	100,0
	Total	187	100,0	100,0	

Table No. 5.2: One-sample statistics for degree of knowledge on IFRS® topic

	N	Mean	Std. Deviation	Std. Error Mean
Degree of knowledge of IFRS	187	3,39	,843	,062

Table No. 5.3: One-sample t-test statistics for degree of knowledge on IFRS® topic

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Degree of knowledge of IFRS	6,243	186	,000	,385	,26	,51

As the distribution of the variable related with the academicians' degree of knowledge on IFRS® topic (Kolmogorov-Smirnov test statistics=0.254; p-value=0.000) is non-normal, the following part of the analysis will be based on non-parametric tests.

Academic rank is a significant differentiator between accounting academicians in regard to their perceptions of knowledge on IFRS®. There is a significant deference in the perceptions of knowledge on IFRS® between Associate Professors and Professors, Assistant Professors and Professors, Lecturers and Associate Professors, Lecturers and Professors (Figure 1-2). In general, Professors perceive themselves as more knowledgeable ($\underline{x}$= 3.87) than Associate Professors ($\underline{x}$= 3.38), Assistant Professors ($\underline{x}$= 3.27), Lecturers ($\underline{x}$= 2.75) and academicians with other academic position ($\underline{x}$= 3.29).

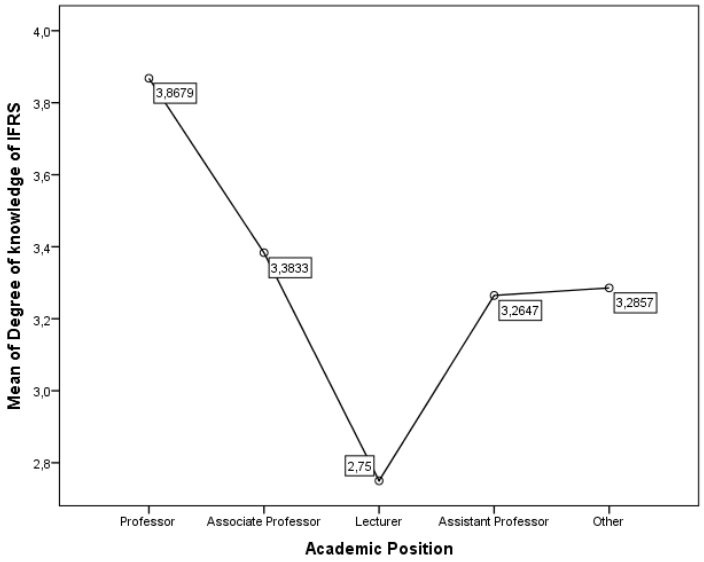
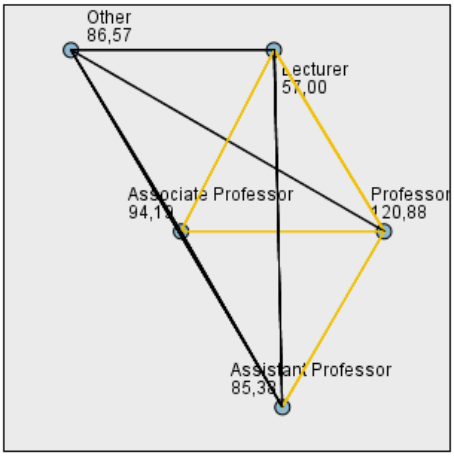


Figure 1: Means plot of knowledge on IFRS® for academicians with different academic rank

Pairwise Comparisons of Academic Position



Each node shows the sample average rank of Academic Position.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Lecturer-Assistant Professor	-28,382	12,390	-2,291	,022	,220
Lecturer-Other	-29,571	20,991	-1,409	,159	1,000
Lecturer-Associate Professor	37,192	11,012	3,377	,001	,007
Lecturer-Professor	63,877	11,262	5,672	,000	,000
Assistant Professor-Other	-1,189	20,880	-,057	,955	1,000
Assistant Professor-Associate Professor	8,809	10,799	,816	,415	1,000
Assistant Professor-Professor	35,495	11,054	3,211	,001	,013
Other-Associate Professor	7,620	20,092	,379	,704	1,000
Other-Professor	34,306	20,230	1,696	,090	,899
Associate Professor-Professor	26,686	9,483	2,814	,005	,049

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Figure 2: Kruskal-Wallis test for differences in the perceptions of knowledge on IFRS® between academic rank categories of academicians

53.0% of the accounting academicians have practical experience, 35.3% of them are reasonable experienced, 11.8% are very experienced and 5.9% are experts in regard to the practical experience (Tables No. 6.1-6.3). The average accounting academician has some practical experience ($\underline{x} \neq 3.0$; t-test=-5.328; df=186; p-value<0.05; $\underline{x}$= 2.57; Mo=3.0; Me=3.0).

Table No. 6.1: Degree of practical experience in IFRS® field

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No practical experience at all	37	19,8	19,8	19,8
	Some practical experience	51	27,3	27,3	47,1
	Reasonably experienced	66	35,3	35,3	82,4
	Very experienced	22	11,8	11,8	94,1
	Expert	11	5,9	5,9	100,0
	Total	187	100,0	100,0	

Table No. 6.2: One-sample statistics for degree of practical experience in IFRS®

	N	Mean	Std. Deviation	Std. Error Mean
Practical experience of IFRS	187	2,57	1,112	,081

Table No. 6.3: One-sample t-test statistics for degree of practical experience in IFRS® field

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Practical experience of IFRS	-5,328	186	,000	-,433	-,59	-,27

As the distribution of the variable related with the academicians' degree of practical experience in IFRS® field (Kolmogorov-Smirnov test statistics=0.181; p-value=0.000) is non-normal, the following part of the analysis will be based on non-parametric tests.

Academic rank is a significant differentiator between academicians in regard to their practical experience on IFRS®. In general, Professors perceive themselves as more experienced ($\underline{x}$= 3.02) than Lecturers ($\underline{x}$= 2.16). The other academic ranks do not significantly differ in their perceptions of practical experience on IFRS® (Figure 3-4).

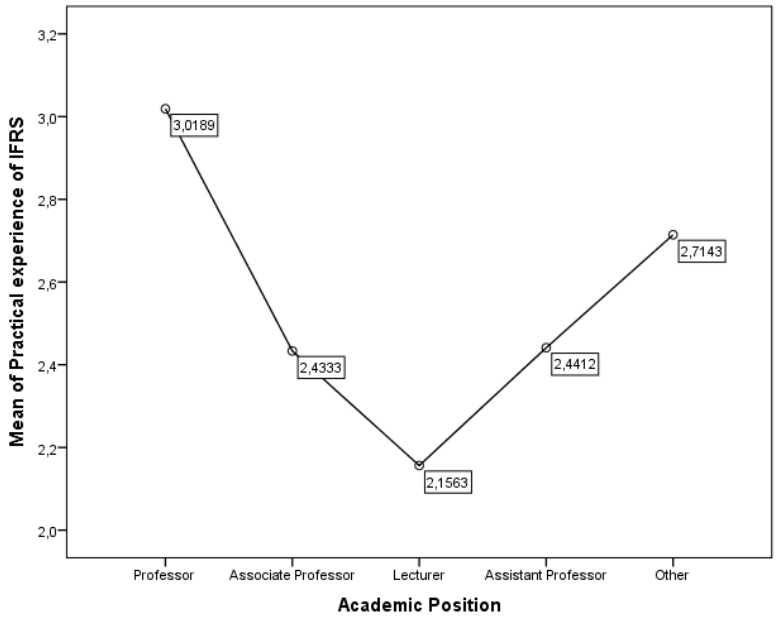


Figure 3: Means plot of practical experience in IFRS® for academicians with different rank

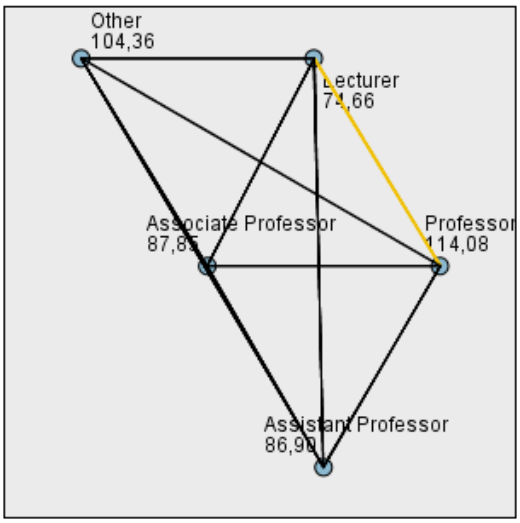


Figure 4: Pairwise comparisons of practical experience in IFRS® for academicians with different rank

2.1. IFRS® perceptions of academicians in HEIs

Second part of the questionnaire includes academicians' perceptions and opinion to various topics related with the importance of IFRS® and their teaching in universities, steps taken by HEIs to incorporate IFRS® in curriculum, usefulness of various pedagogical approaching for IFRS® learning, usefulness of different IFRS® learning tools and materials, perceived challenges in teaching IFRS®, level of perceived difficulty for various challenges in teaching IFRS®, preferred sources for keeping up-to-date with IFRS® changes.

All accounting academicians (100.0%) stated that teaching of IFRS® is important. 71.1% of the respondents reported that teaching of IFRS® is very or extremely important (Tables No. 7.1-7.3).The average academician perceived the teaching of IFRS® as very important ($\underline{x}$ =4.0; t-test=-0.503; df=186; p-value>0.05; $\underline{x}$= 3.97; Mo=4.0; Me=4.0).

Table No. 7.1: Level of importance assigned to IFRS®

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Somewhat important	10	5,3	5,3	5,3
	Important	44	23,5	23,5	28,9
	Very important	75	40,1	40,1	69,0
	Extremely important	58	31,0	31,0	100,0
	Total	187	100,0	100,0	

Table No. 7.2: One-sample statistics for the level of importance assigned to IFRS®

	N	Mean	Std. Deviation	Std. Error Mean
How important is the teaching of IFRS in general?	187	3,97	,873	,064

Table No. 7.3: One-sample test statistics for the level of importance assigned to IFRS®

	Test Value = 4

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
How important is the teaching of IFRS in general?	-,503	186	,616	-,032	-,16	,09

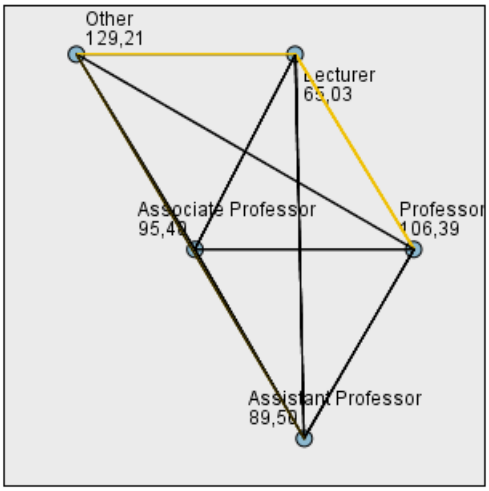
As the distribution of the variable related with the level of importance assigned to IFRS® (Kolmogorov-Smirnov test statistics=0.226; p-value=0.000) is non-normal, the following part of the analysis will be based on non-parametric tests.

Academic rank is a very significant differentiator between accounting academicians in regard to the importance they have assigned to the teaching of IFRS®. There is a significant deference in the perceived importance of the IFRS® teaching between the Professors and Lecturers and Lecturers and academicians with other academic rank (Figure 5). In general, academicians with other academic rank assign higher importance on the teaching of IFRS® ($\underline{x}$= 4.57) followed by Professors ($\underline{x}$= 4.21), Associate Professors ($\underline{x}$= 3.98), Assistant Professors ($\underline{x}$= 3.91), and Lecturers ($\underline{x}$= 3.47) (Figure 6).

Academicians' nationality also matters. North Macedonian academicians assigned lowest importance of IFRS® teaching, Romanians – the highest (Figure No. 7). Significant differences in the perceived importance attached by the academicians to the IFRS® teaching could be identified between Bulgarian and North Macedonian academicians, North Macedonians and Romanians, Romanians and Lithuanians, Lithuanians and Turkish academicians, and North Macedonian and Turkish academicians (Figure No. 8).

An indirect proof for the importance academicians assign to the IFRS® teaching is that according to the most of accounting academicians (72.7%) IFRS® should be covered on both undergraduate and postgraduate level.

Pairwise Comparisons of Academic Position



Each node shows the sample average rank of Academic Position.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Lecturer-Assistant Professor	-24,469	12,533	-1,952	,051	,509
Lecturer-Associate Professor	30,369	11,139	2,726	,006	,064
Lecturer-Professor	41,356	11,392	3,630	,000	,003
Lecturer-Other	-64,183	21,233	-3,023	,003	,025
Assistant Professor-Associate Professor	5,900	10,923	,540	,589	1,000
Assistant Professor-Professor	16,887	11,181	1,510	,131	1,000
Assistant Professor-Other	-39,714	21,120	-1,880	,060	,601
Associate Professor-Professor	10,987	9,592	1,145	,252	1,000
Associate Professor-Other	-33,814	20,324	-1,664	,096	,962
Professor-Other	-22,827	20,464	-1,116	,265	1,000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Figure 5: Kruskal-Wallis test for differences in the assigned importance of IFRS® teaching between different academic ranks

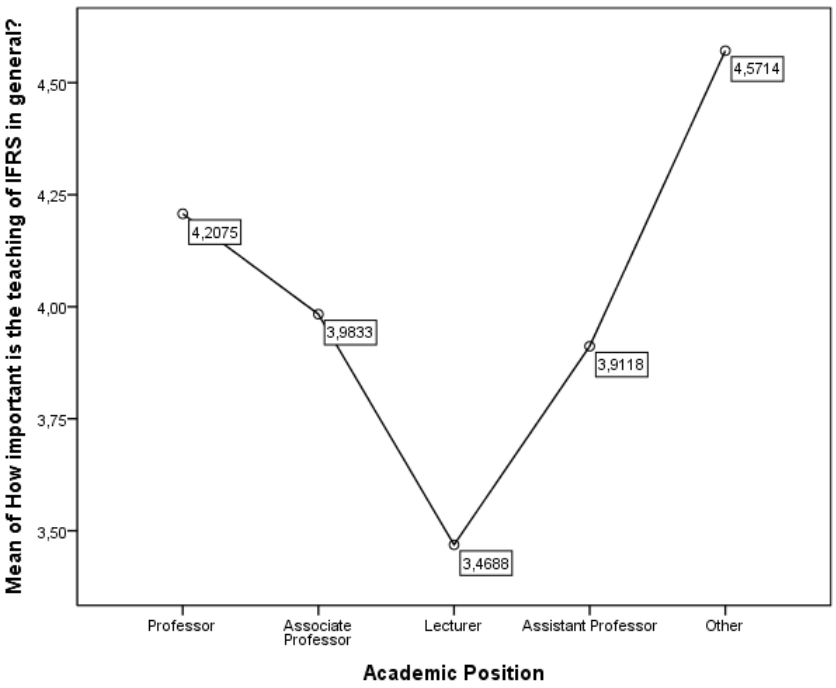


Figure 6: Means plot of importance of IFRS® teaching for academicians with different ranks

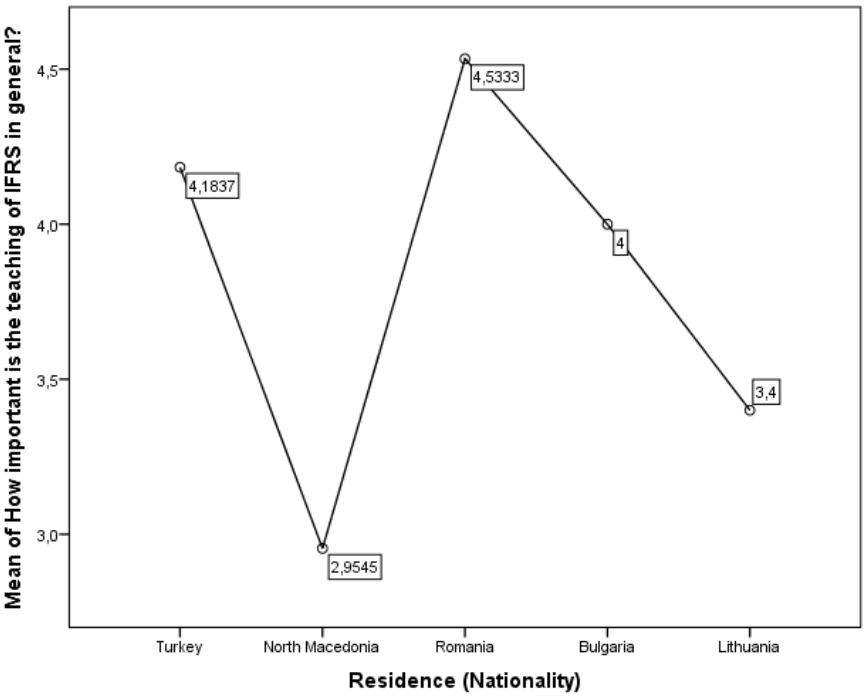
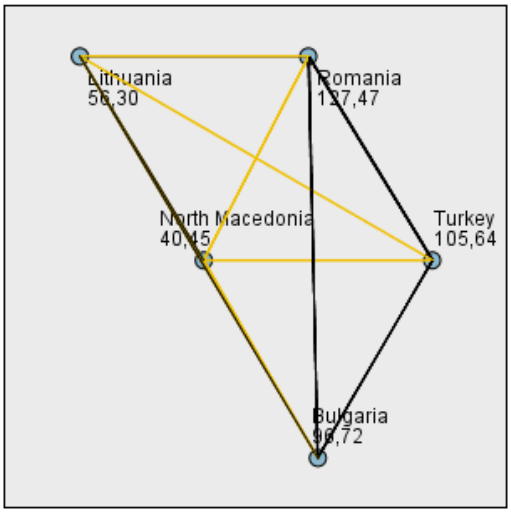


Figure 7: Means plot of importance of IFRS® teaching for academicians from different nationalities

Pairwise Comparisons of Residence (Nationality)



Each node shows the sample average rank of Residence (Nationality).

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
North Macedonia-Lithuania	-15,845	17,122	-,925	,355	1,000
North Macedonia-Bulgaria	-56,262	13,767	-4,087	,000	,000
North Macedonia-Turkey	65,188	12,064	5,404	,000	,000
North Macedonia-Romania	-87,012	17,122	-5,082	,000	,000
Lithuania-Bulgaria	40,416	15,652	2,582	,010	,098
Lithuania-Turkey	49,343	14,177	3,480	,001	,005
Lithuania-Romania	71,167	18,672	3,811	,000	,001
Bulgaria-Turkey	8,927	9,867	,905	,366	1,000
Bulgaria-Romania	30,750	15,652	1,965	,049	,495
Turkey-Romania	-21,824	14,177	-1,539	,124	1,000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Figure 8: Kruskal-Wallis test for differences in the assigned importance of IFRS® teaching between different academicians' nationalities

Most of the accounting academicians (91.4%) stated that their HEI has undertaken some steps to incorporate IFRS® in curriculum. Only 8.6% reported that no significant steps have taken yet (Table No. 8). The most frequent step mentioned by the academicians is that their HEI has created undergraduate and postgraduate courses (35.8%). Other steps undertaken by the HEIs are to integrate significant component of IFRS® into existing courses (26.2%) and create a separate undergraduate course (16.0%).

Table No. 8: Steps undertaken by HEIs to incorporate IFRS®in curriculum

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No significant steps yet taken	16	8,6	8,6	8,6
	Actively assessing future course of action	12	6,4	6,4	15,0
	Integrated significant components of IFRS into existing course/s	49	26,2	26,2	41,2
	Created a separate undergraduate course	13	7,0	7,0	48,1
	Created a separate graduate course	30	16,0	16,0	64,2
	Created both undergraduate and graduate courses	67	35,8	35,8	100,0
	Total	187	100,0	100,0	

Accounting academicians found as useful all pedagogical approaches for IFRS® teaching (Figure 9). In general, the usefulness score for each of the pedagogical approaches is significantly higher than 3.0. Most useful pedagogical approach is to use case studies to develop students' analytical evaluation and judgement skills ($\underline{x}$= 4.57; Me=5.0; Mo=5.0). The approach has been chosen by all academicians as useful. 62.6% defined it as extremely useful, 32.6% - as moderately useful, and very small portion of academicians defined it as somehow (4.3%) or slightly useful (0.5%). None of the academicians defined it as unuseful.

Simulations are ranked on second place as useful pedagogical approach ($\underline{x}$= 4.44; Me=5.0; Mo=5.0).As case studies, simulations have been chosen by all academicians as useful approach. 56.1% defined it as extremely useful, 34.2% - as moderately useful, 7.0% - as somehow useful, and 2.7% - as slightly useful. None of the academicians defined simulations as non-useful pedagogical approach for IFRS® teaching. Next useful approach, ranked by the academicians on third place, is to start by teaching theory and rationale before teaching the new standards ($\underline{x}$= 4.35; Me=5.0; Mo=5.0). 95.5% of the academicians found it as useful. 51.9% defined it as extremely useful, 35.8% - as moderately useful, 8.0% - as somehow useful, and 3.7% - as slightly useful. The fourth-ranked pedagogical approach is to invite IFRS® experts as guest speakers to provide students with real-life learning experience ($\underline{x}$= 4.34; Me=4.0; Mo=5.0). According to 48.9% of academicians this approach is extremely useful, for 37.6% of them it is moderately useful, for 11.8% it is somehow useful, and for 2.7% - slightly useful. None of the academicians defined guest speakers approach for IFRS® teaching as non-useful. Academicians ranked on fifth place research projects on emerging IFRS® issues as a pedagogical approach for IFRS® teaching ($\underline{x}$= 4.17; Me=4.0; Mo=4.0). 37.6% of the academicians defined research projects as extremely useful approach, 43.5% - as moderately useful, 16.7% - as somehow useful, and 2.2% - as slightly useful. None of the academicians defined research projects as non-useful pedagogical approach for IFRS® teaching. The sixth-ranked pedagogical approach is cooperative-based learning approach related with providing short-term industry work prior course completion ($\underline{x}$= 4.07; Me=4.0; Mo=4.0). According to 34.2% of academicians this approach is extremely useful, for 44.4% of them it is moderately useful, for 16.6% it is somehow useful, for 4.3% - slightly useful, and for 0.5% - it is not useful at all. Academicians ranked on seventh place oral presentations on emerging IFRS® issues as a pedagogical approach for IFRS® teaching ($\underline{x}$= 4.03; Me=4.0; Mo=4.0). 29.9% of the academicians defined oral presentations as extremely useful approach, 50.3% - as moderately useful, 13.4% - as somehow useful, 5.9% - as slightly useful. As cooperative-based learning, one academician (0.5%) found oral presentations as unuseful pedagogical approach for IFRS® teaching. Finally, academicians ranked on last place role playing to enhance students' communication and interpersonal skills and stimulate their creativity as useful

pedagogical approach for IFRS® teaching. They think that it is less useful in comparison with the other approaches ($\underline{x}$= 3.91; Me=4.0; Mo=4.0). According to 31.6% of academicians this approach is extremely useful, for 38.0% of them it is moderately useful, for 23.0% it is somehow useful, for 5.3% - slightly useful, and for 2.1% - it is not useful at all.

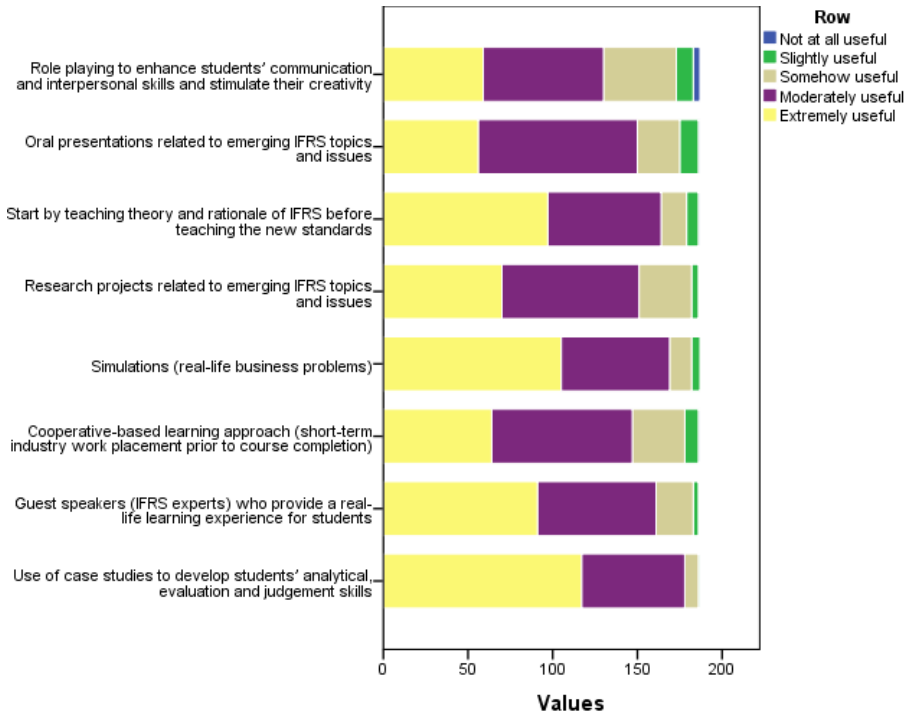


Figure 9: Useful pedagogical approaches for IFRS® teaching

As all distributions of the variables related with the perceived usefulness of pedagogical approaches for IFRS® teaching (p-value=0.000) are non-normal, the next part of the analysis will be based on non-parametric tests.

There are significant differences in perceived usefulness of different pedagogical approaches for IFRS® teaching (Friedman Chi-square test=149.362; df=7; p-value=0.000<0.05). The significant differences in the usefulness is observed between the following approaches (Figure10): role playing and guest speakers (adj. p-value=0.000); role playing and start by teaching theory and rationale (adj. p-value=0.000); role playing and simulations (adj. p-value=0.000); role playing and case studies (adj. p-value=0.000); oral presentations and guest speakers (adj. p-value=0.018); oral presentations and start by teaching theory (adj. p-value=0.010); oral presentations and simulations (adj. p-value=0.000), oral presentations and case studies (adj. p-value=0.000); cooperative-based learning approach and start by teaching theory (adj. p-value=0.042); cooperative-based learning and simulations (adj. p-value=0.001); cooperative-based learning and case studies (adj. p-value=0.000); research projects on emerging IFRS topics and simulations (adj. p-value=0.011); research projects and case studies (adj. p-value=0.000).

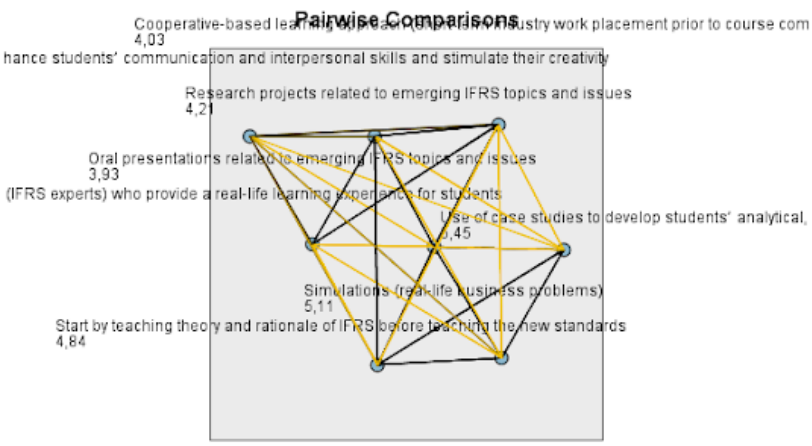


Figure 10: Pairwise comparisons between usefulness of pedagogical approaches for IFRS® teaching

It is interesting to mention that there are no significant differences in perceived usefulness of the various teaching approached across academicians with different academic ranks (Figure 11). However, significant differences in the usefulness of the pedagogical approaches for IFRS® teaching are observed across different nationalities (Figure 12). The observed differences between academicians from each of the approaches are as follows:

- case studies (a): North Macedonia ($\underline{x}$= 4.09) and Turkey ($\underline{x}$= 4.56); North Macedonia and Bulgaria ($\underline{x}$= 4.89); North Macedonia and Romania ($\underline{x}$= 4.93); Turkey and Bulgaria; Lithuania ($\underline{x}$= 4.20) and Bulgaria; Lithuania and Romania;
- guest speakers (b): North Macedonia ($\underline{x}$= 4.09) and Bulgaria ($\underline{x}$= 4.69); Lithuania ($\underline{x}$= 3.93) and Bulgaria; Turkey ($\underline{x}$= 4.33) and Bulgaria;
- cooperative-based learning (c): Lithuania ($\underline{x}$= 3.53) and Bulgaria ($\underline{x}$= 4.38);
- research projects (d): Lithuania ($\underline{x}$= 3.47) and Bulgaria ($\underline{x}$= 4.44); Lithuania and Turkey ($\underline{x}$= 4.20);
- start by teaching theory (e): Lithuania ($\underline{x}$=3.40) and Bulgaria ($\underline{x}$= 4.62);Lithuania and Turkey ($\underline{x}$= 4.55); Romania ($\underline{x}$= 3.67) and Bulgaria; Romania and Turkey;
- oral presentations (f): Lithuania ($\underline{x}$= 3.47) and Bulgaria ($\underline{x}$= 4.21); Lithuania and Turkey ($\underline{x}$= 4.11);
- role playing (g): Lithuania ($\underline{x}$= 3.47) and Bulgaria ($\underline{x}$= 4.41); Romania ($\underline{x}$= 3.33) and Bulgaria; Turkey ($\underline{x}$= 3.85) and Bulgaria.

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Use of case studies to develop students' analytical, evaluation and judgement skills is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,484	Retain the null hypothesis.
2	The distribution of Guest speakers (IFRS experts) who provide a real-life learning experience for students is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,652	Retain the null hypothesis.
3	The distribution of Cooperative-based learning approach (short-term industry work placement prior to course completion) is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,102	Retain the null hypothesis.
4	The distribution of Simulations (real-life business problems) is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,279	Retain the null hypothesis.
5	The distribution of Research projects related to emerging IFRS topics and issues is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,870	Retain the null hypothesis.
6	The distribution of Start by teaching theory and rationale of IFRS before teaching the new standards is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,307	Retain the null hypothesis.
7	The distribution of Oral presentations related to emerging IFRS topics and issues is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,080	Retain the null hypothesis.
8	The distribution of Role playing to enhance students' communication and interpersonal skills and stimulate their creativity is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,391	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Figure 11: Kruskal-Wallis test for differences in the usefulness of pedagogical approaches for IFRS® teaching

In general, Bulgarian accounting academicians have evaluated the usefulness of the most of the proposed pedagogical approaches for IFRS® teaching higher than all other academicians (overall $\underline{x}$= 4.5343>overall total $\underline{x}$= 4.2356), Lithuanians – lower (overall $\underline{x}$= 3.7<overall total $\underline{x}$= 4.2356). Turkish academicians have assigned highest score for usefulness to case studies ($\underline{x}$= 4.56) and start by teaching theory ($\underline{x}$= 4.55)and lowest to role playing ($\underline{x}$= 3.85). North Macedonian academicians perceive as most useful simulations ($\underline{x}$= 4.23), and least useful – oral presentations ($\underline{x}$= 4.00). Romanians have attached highest score to case studies ($\underline{x}$= 4.93) and least score to role playing ($\underline{x}$= 3.33). Bulgarian academicians have ranked as most useful case studies approach ($\underline{x}$= 4.89) and as least useful – oral presentations ($\underline{x}$= 4.22). Lithuanians have assigned highest score for usefulness to case studies ($\underline{x}$= 4.20) and lowest to start by teaching theory ($\underline{x}$= 3.40).

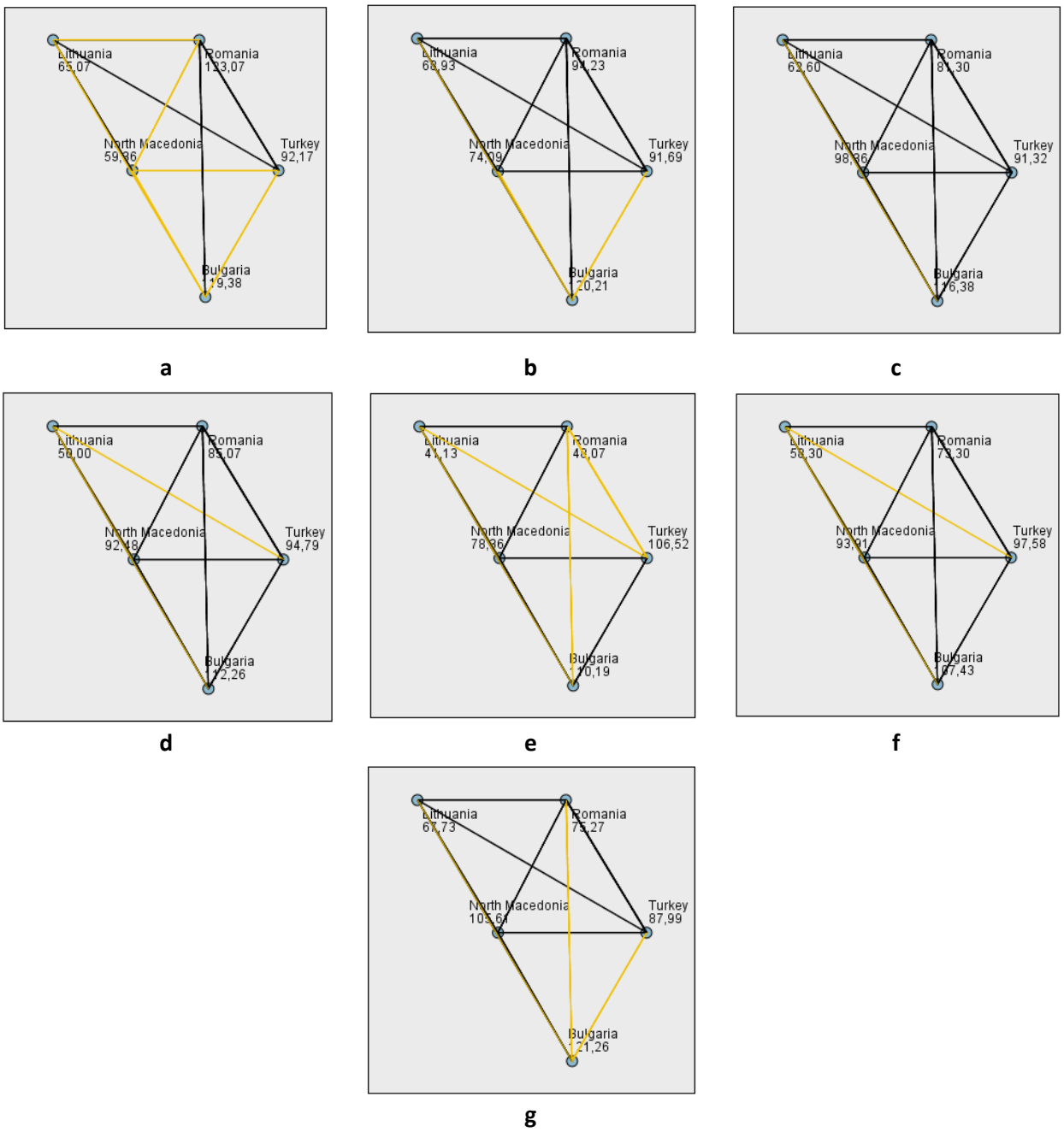


Figure 12: Pairwise comparisons in the usefulness across nationalities

Accounting academicians experienced some challenges in teaching IFRS®. According to 59.7% of them, insufficiency of practices in IFRS® teaching is a major challenge or moderately a challenge ($\underline{x}$= 3.59; Me=4.0; Mo=4.0). Few academicians (2.7%) have reported that the insufficiency of practices in IFRS® teaching is not a challenge at all. Next challenge accounting academicians have experienced some difficulties is the faculty expertise in IFRS® ($\underline{x}$= 3.44; Me=4.0; Mo=4.0). 54.8% have reported faculty expertise in IFRS® as a major challenge or moderately a challenge. Only for 5.4% of the academicians it is not a challenge at all. Developing curriculum materials for IFRS® ($\underline{x}$= 3.25; Me=3.0; Mo=4.0) is a major challenge or moderately a challenge for 48.7% of academicians and not a challenge at all for 9.1%. 47.0% of the academicians have reported that availability of financial resources is a major challenge or moderately a challenge ($\underline{x}$= 3.22; Me=3.0; Mo=4.0). For 11.2% of the academicians it is not a challenge at all. Next challenge accounting academicians have experienced some difficulties is language barrier ($\underline{x}$= 3.20; Me=3.0; Mo=3.0). The latter is a major challenge or moderately a challenge for 38.7% of the academicians and not a challenge at all for 8.6%. The challenge ranked on last place

is making room in the curriculum for IFRS® ($\underline{x}$= 2.74; Me=3.0; Mo=1.0 and 3.0). It has been reported as a major challenge or moderately a challenge by 32.7% of the academicians. For 24.1% of them it is not a challenge at all.

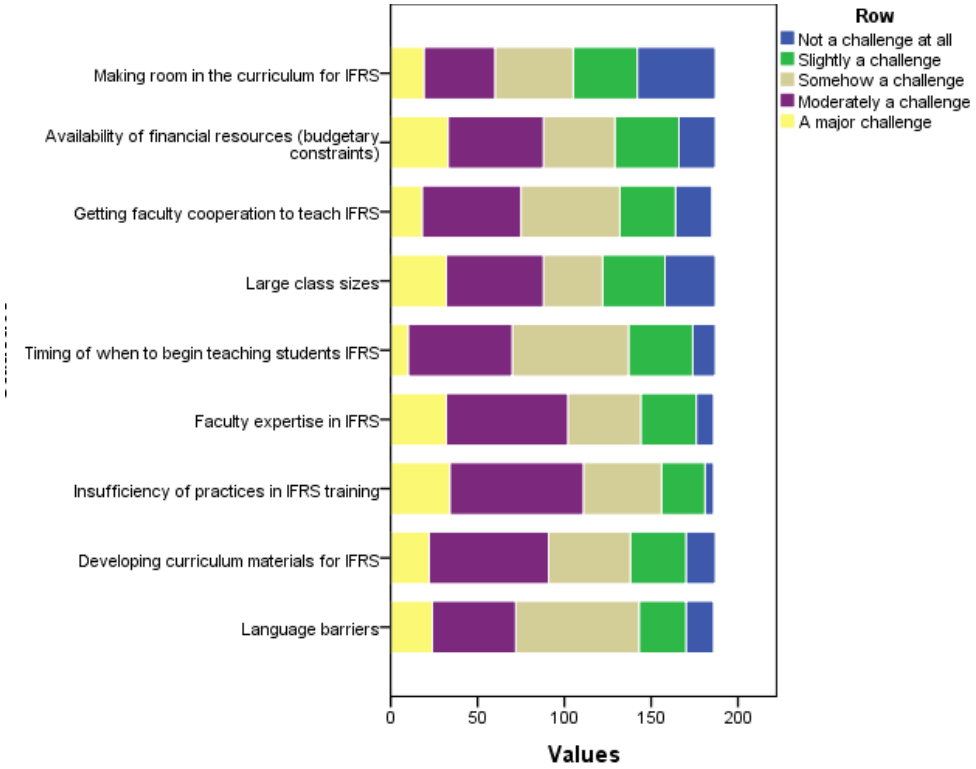


Figure 13: Difficulties in the challenges in IFRS® teaching

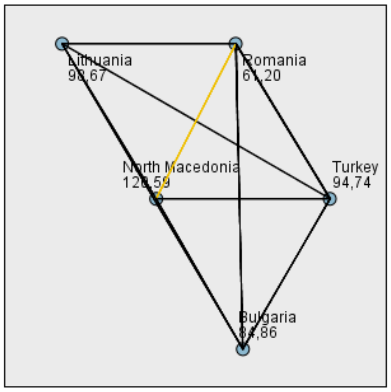
As all distributions of the variables related with the perceived challenges in IFRS® teaching (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

It is interesting to point out that the level of difficulties experienced by the academicians varies across different nationalities (Figure 14). The observed differences for each of the challenges are between the following group of nationalities:

- language barriers (a): Romanians ($\underline{x}$= 2.53) and North Macedonians ($\underline{x}$= 3.77);
- developing curriculum materials for IFRS® (b):Romanians ($\underline{x}$= 2.47) and North Macedonians ($\underline{x}$= 4.00); Bulgarians ($\underline{x}$= 2.76) and North Macedonians;
- insufficiency of practices in IFRS® training (c): Romanians ($\underline{x}$= 2.80) and North Macedonians ($\underline{x}$= 4.05); Bulgarians ($\underline{x}$= 3.05) and North Macedonians; Romanian and Turkish academicians ($\underline{x}$= 3.77); Bulgarian and Turkish academicians;
- faculty expertise in IFRS® (d): Romanians ($\underline{x}$= 2.53) and North Macedonians ($\underline{x}$= 4.05); Bulgarians ($\underline{x}$= 2.97) and North Macedonians; Romanian and Turkish academicians ($\underline{x}$= 3.69); Bulgarian and Turkish academicians; Lithuanians ($\underline{x}$= 2.93) and North Macedonians;
- timing of when to begin teaching student IFRS® (e): Romanians ($\underline{x}$= 2.67) and North Macedonians ($\underline{x}$= 3.86); Bulgarians ($\underline{x}$= 2.70) and North Macedonians; Lithuanians ($\underline{x}$= 2.67) and North Macedonians;
- large class (f): Bulgarians ($\underline{x}$= 2.49) and North Macedonians ($\underline{x}$= 4.05); Bulgarian ($\underline{x}$= 2.49) and Turkish academicians ($\underline{x}$= 3.37); Lithuanians ($\underline{x}$= 2.20) and North Macedonians; Lithuanians and Turkish academicians;

- getting faculty cooperation to teach IFRS® (g): Romanians ($\underline{x}$= 2.33) and North Macedonians ($\underline{x}$= 3.86); Romanian and Turkish academicians ($\underline{x}$= 3.34); Bulgarian ($\underline{x}$= 2.47) and Turkish academicians;Bulgarians and North Macedonians; Lithuanians ($\underline{x}$= 2.80) and North Macedonians;
- availability of financial resources (h): Bulgarian ($\underline{x}$= 3.03) and Turkish academicians ($\underline{x}$= 3.09); North Macedonian ($\underline{x}$= 4.18) and Turkish academicians;
- making room in the curriculum for IFRS® (i): Romanians ($\underline{x}$= 2.13) and North Macedonians ($\underline{x}$= 4.00); Bulgarian ($\underline{x}$= 1.97) and Turkish academicians ($\underline{x}$= 2.84);Bulgarians and North Macedonians; Turkish and North Macedonian academicians.

For Turkish, Bulgarian and Lithuanian academicians, the top ranked challenge is insufficiency of practices in IFRS® teaching, for North Macedonians and Romanians, it is availability of financial resources. Making room in the curriculum for IFRS® is least challenging for North Macedonian, Romanian, Turkish, and Bulgarian academicians. For Lithuanians, the least challenging are large classes.



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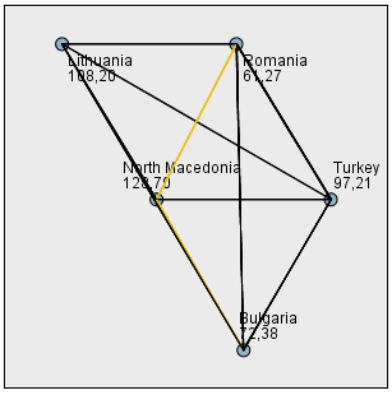

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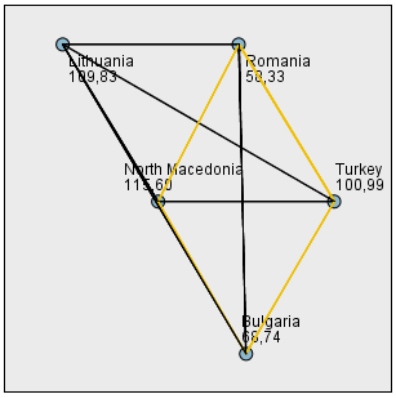

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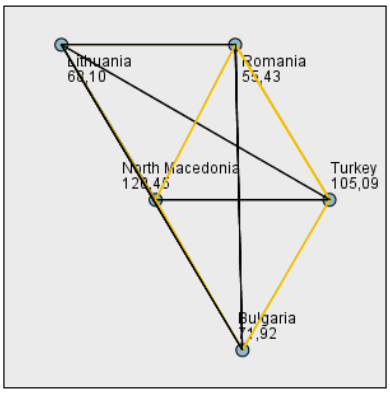

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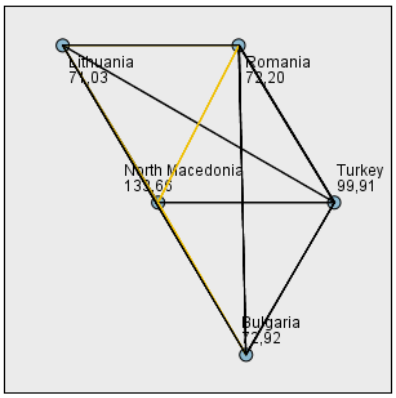

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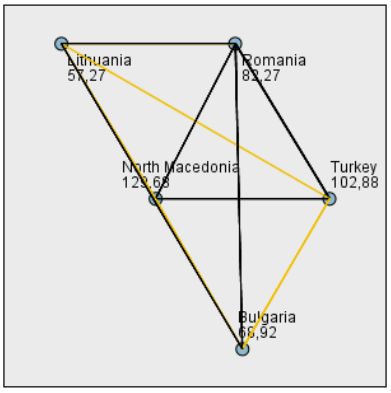

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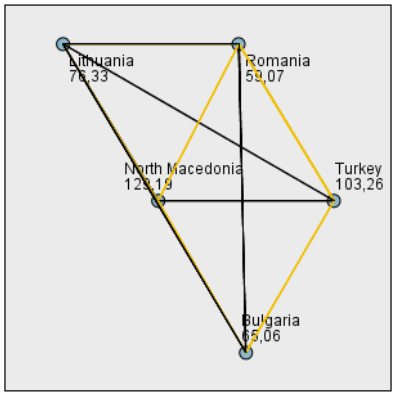
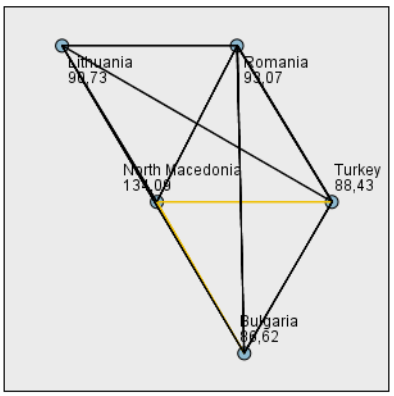
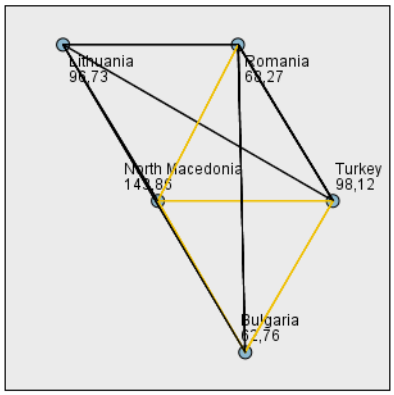






g **h** **i**

Figure 14: Pairwise comparisons in the difficulties in the challenges in IFRS® teaching across nationalities

Accounting academicians use different learning tools and materials to deliver their content (Figure 15). According to the average rating score, academicians have rated case studies as most useful ($\underline{x}$=4.55, Me-5.0, Mo=5.0), followed by videos ($\underline{x}$=4.05, Me=4.0, Mo=4.0), textbooks ($\underline{x}$=3.96, Me=4.0, Mo=4.0) and webcasts ($\underline{x}$=3.96, Me=4.0, Mo=4.0). Lowest rate of usefulness was assigned to smart boards ($\underline{x}$=3.53, Me=4.0, Mo=4.0).

As all distributions of the variables related with the perceived usefulness of the learning tools (p-value=0.000) are non-normal, the next part of the analysis will be based on non-parametric tests.

There is a significant difference in the ratings assigned to different learning tools and materials by the academicians from different nationalities (Figure 15-16). In general, Turkish, Romanian, Lithuanian and Bulgarian academicians have assigned highest rating score to case studies, North Macedonians – to videos. Lithuanians have assigned lowest rating score to textbooks and smart boards, North Macedonians – to specific software, Turkish, Romanian and Bulgarian academicians – to smart boards. Regarding perceived usefulness of the case studies, there are significant differences between North Macedonians and Bulgarians (adj. p-value=0.005) and North Macedonians and Romanians (adj. p-value=0.007), as well as between Lithuanians and Bulgarians (adj. p-value=0.049) and Lithuanians and Romanians (adj. p-value=0.040).

Academic rank does not make academicians significantly different in regard to the perceived usefulness of different learning tools and materials (Figure 17). All observed differences are random and due to the random features of the sample (all p-values>0.05).

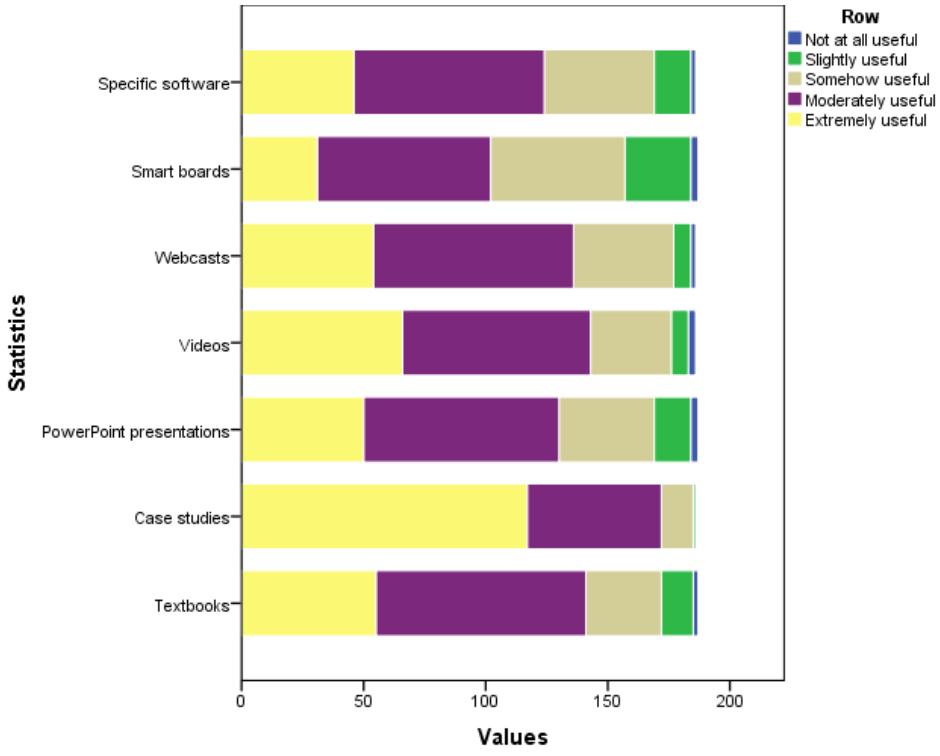
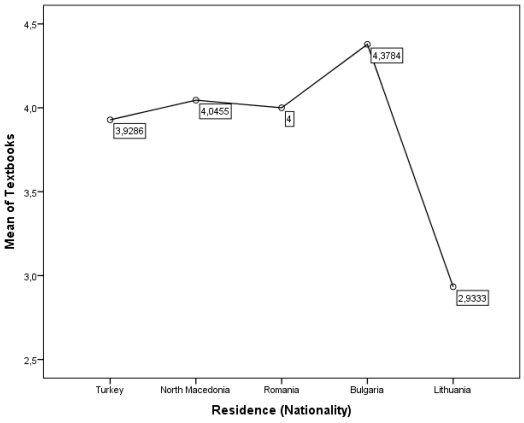
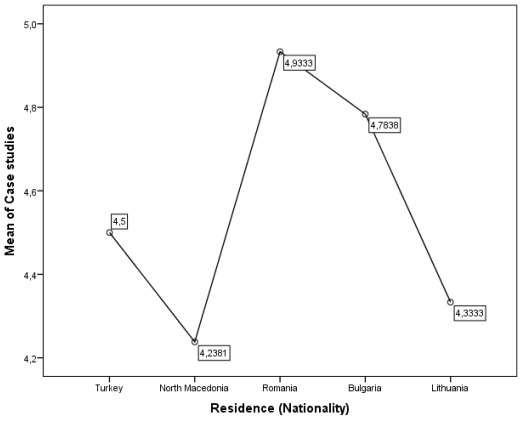


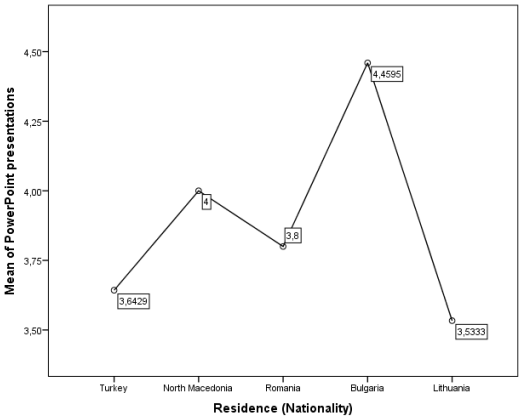
Figure 14: Distributions of scores of usefulness of the learning materials


Mean of Textbooks
4,5
4,0
3,5
3,0
2,5
3,9286
4,0455
4
4,3784
2,9333
Turkey
North Macedonia
Romania
Bulgaria
Lithuania
Residence (Nationality)

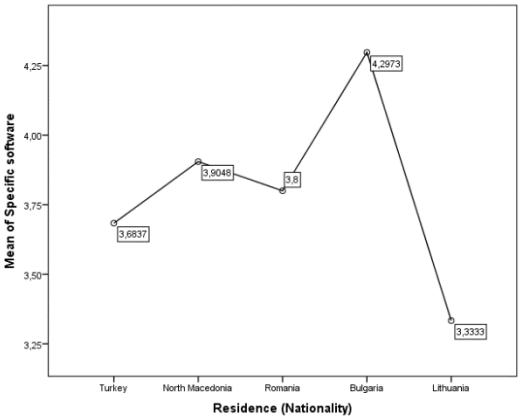
a


Mean of Case studies
5,0
4,8
4,6
4,4
4,2
4,5
4,2381
4,9333
4,7838
4,3333
Turkey
North Macedonia
Romania
Bulgaria
Lithuania
Residence (Nationality)

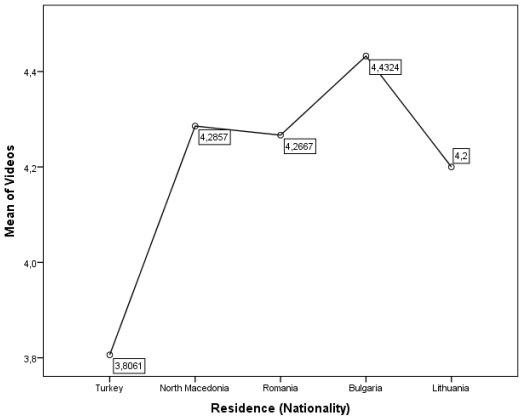
b


Mean of PowerPoint presentations
4,50
4,25
4,00
3,75
3,50
3,6429
4
3,8
4,4595
3,5333
Turkey
North Macedonia
Romania
Bulgaria
Lithuania
Residence (Nationality)

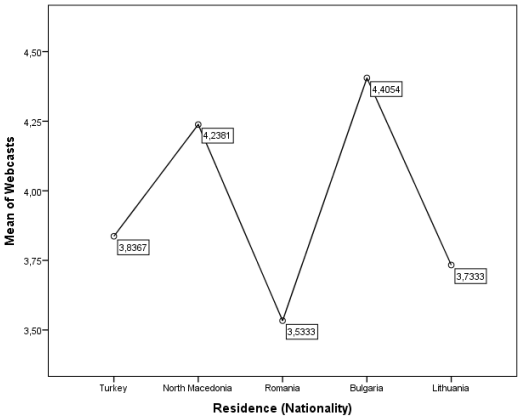
c


Mean of Specific software
4,25
4,00
3,75
3,50
3,25
3,6837
3,9048
3,8
4,2973
3,3333
Turkey
North Macedonia
Romania
Bulgaria
Lithuania
Residence (Nationality)

d


Mean of Videos
4,4
4,2
4,0
3,8
3,8061
4,2857
4,2667
4,4324
4,2
Turkey
North Macedonia
Romania
Bulgaria
Lithuania
Residence (Nationality)

e


Mean of Webcasts
4,50
4,25
4,00
3,75
3,50
3,8367
4,2381
3,5333
4,4054
3,7333
Turkey
North Macedonia
Romania
Bulgaria
Lithuania
Residence (Nationality)

f

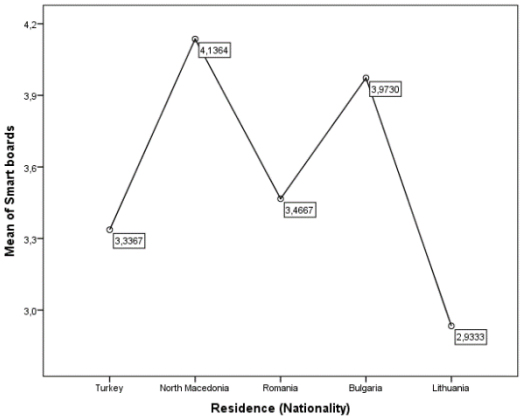


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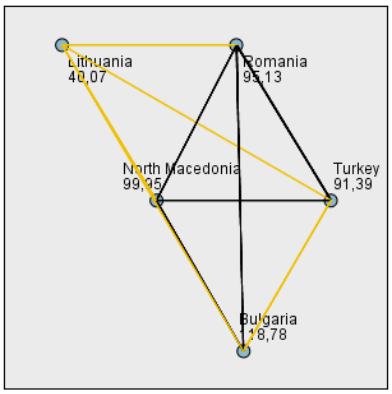
Figure 15: Means plots for usefulness of the learning materials across nationality groups



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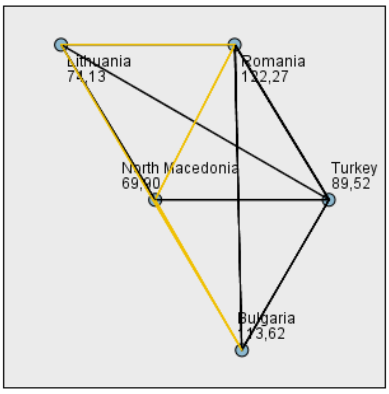

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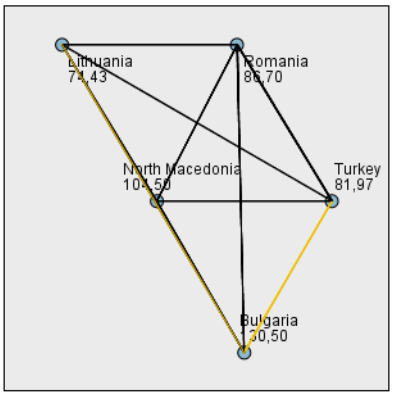

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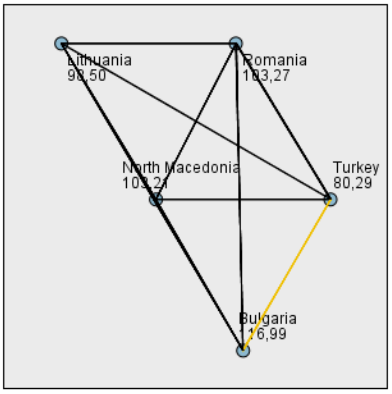

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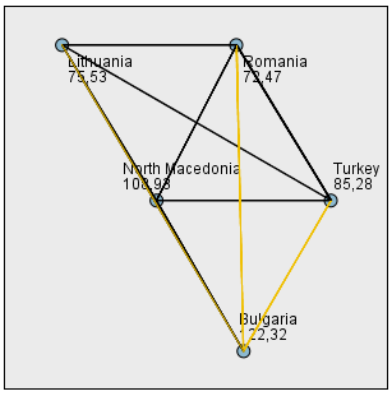

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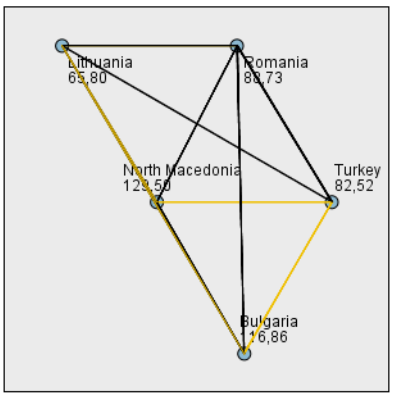

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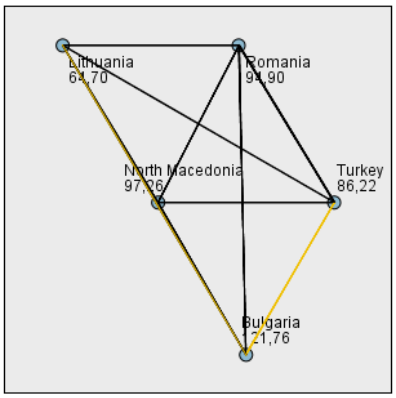

g

Figure 16: Pairwise comparisons in the usefulness of the learning materials between nationalities (textbooks (a); case studies (b); PowerPoint presentations (c); videos (d); webcasts (e); smart boards (f); specific software (g))

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Textbooks is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,052	Retain the null hypothesis.
2	The distribution of Case studies is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,525	Retain the null hypothesis.
3	The distribution of PowerPoint presentations is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,072	Retain the null hypothesis.
4	The distribution of Videos is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,281	Retain the null hypothesis.
5	The distribution of Webcasts is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,569	Retain the null hypothesis.
6	The distribution of Smart boards is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,409	Retain the null hypothesis.
7	The distribution of Specific software is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,172	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Figure 17: Kruskal-Wallis test for differences in the usefulness of the learning materials across academic ranks

56.2% of the accounting academicians believe in consulting the English version of IFRS® despite the availability of translations in their local language (Figure 18). 42.2% of them think that equivalent translation to any other language is possible versus 32.6% who think that it is impossible. Bigger portion of academicians have stated that IFRS® should be taught not only in English (74.9% against 12.3% who think that the only language of instruction is English) and availability of consistent high-quality translations of IFRS® teaching materials in a local language is achievable in the next 5 years (43.8% against 24.6% who think that this is not achievable). As all distributions of the variables related with language and translation issues (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

It is interesting to recognise that there are significant differences regarding language and translation issues between academic ranks (Figure 18). Professors ($\underline{x}$= 1.77) and Lecturers ($\underline{x}$= 2.44) significantly differ each other in their opinion regarding the language in which IFRS® should be taught and delivered (adj. p-value=0.033).

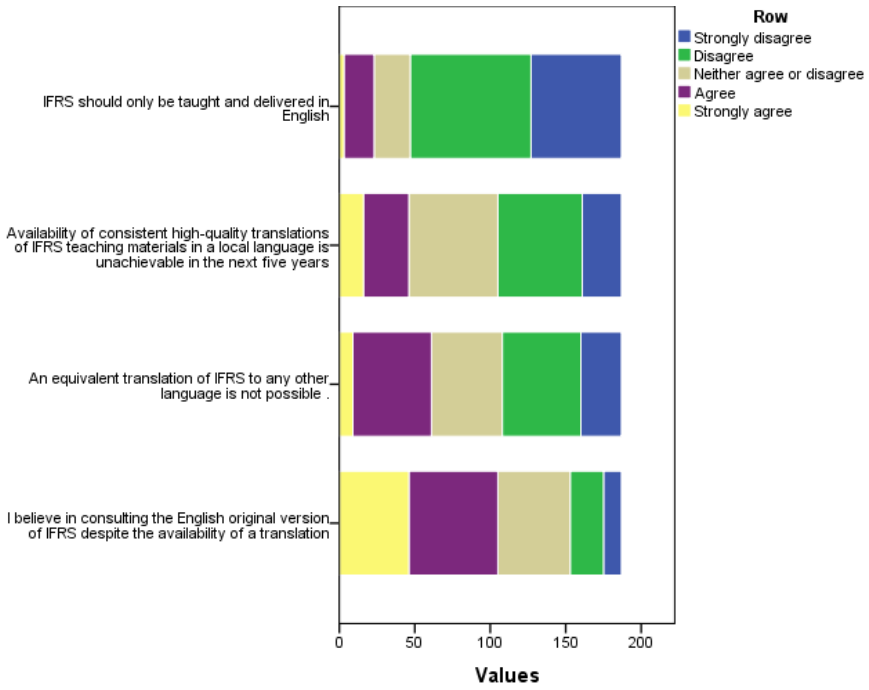

Figure 18: Distribution of scores on language and translation issues

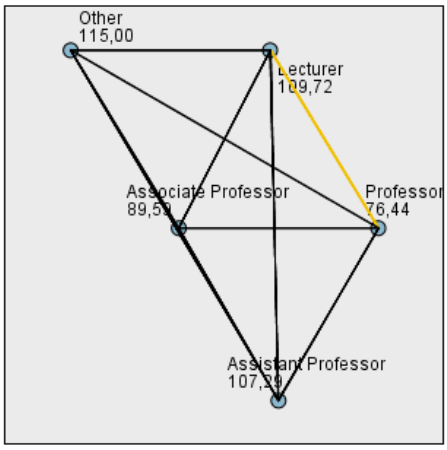

Figure 19: Pairwise comparisons on language and translation issues across academic ranks

Accounting academicians experience different challenges in teaching IFRS® (Figure 20). The challenge which has been mentioned most frequently as a major/moderate concern (69.0%) is confusion among the students ($\underline{x}$=3.79; Me=4.0 Mo=4.0), followed by the lack of sufficient examples and exercises illustrating differences between National standards and IFRS® ($\underline{x}$=3.73; Me=4.0 Mo=4.0), which is a major/moderate concern for 65.7% of the academicians. As all distributions of the variables related with the perceived challenges in learning IFRS® (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

It is interesting to point out that there is significant difference in the perceive challenges in learning IFRS® across nationality groups of academicians (Figure 21).

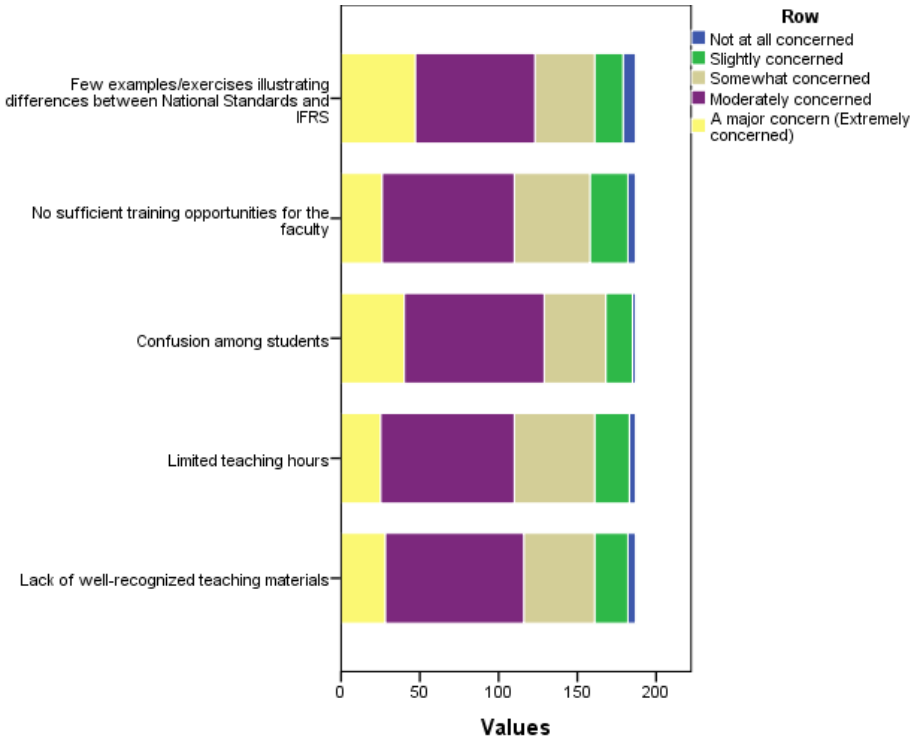

Figure 20: Distribution of scores on experienced challenges in learning IFRS®

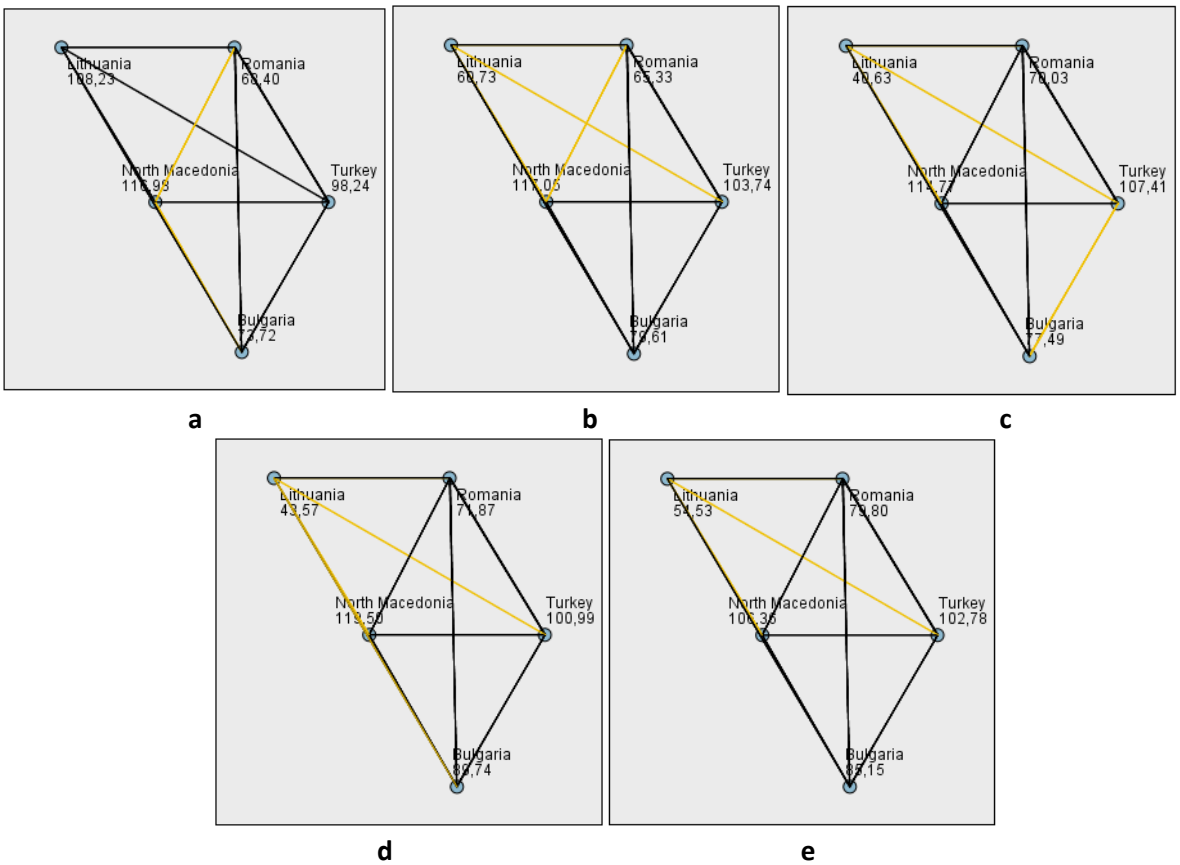

Figure 21: Pairwise comparisons of experienced challenges in learning IFRS® across nationalities

Significant differences (adj. p-values<0.05) are observed between:

- lack of well-recognised teaching materials (a): North Macedonians ($\underline{x}$=4.05) and Bulgarians ($\underline{x}$=3.24) and North Macedonians and Romanians ($\underline{x}$=3.00);
- limited teaching hours (b): North Macedonians ($\underline{x}$=4.00) and Lithuanians ($\underline{x}$=3.07), North Macedonians and Romanians ($\underline{x}$=2.87), Turks ($\underline{x}$=3.76) and Lithuanians;
- confusion among students (c): North Macedonians ($\underline{x}$=4.18) and Lithuanians ($\underline{x}$=2.80), North Macedonians and Bulgarians ($\underline{x}$=3.49), Turks ($\underline{x}$=4.04) and Lithuanians;
- no sufficient training opportunities for the faculty (d): North Macedonians ($\underline{x}$=4.05) and Lithuanians ($\underline{x}$=2.53), Lithuanians and Bulgarians ($\underline{x}$=3.51), Turks ($\underline{x}$=3.67) and Lithuanians;
- few examples illustrating differences between National standards and IFRS (e): North Macedonians ($\underline{x}$=4.00) and Lithuanians ($\underline{x}$=3.00), Turks ($\underline{x}$=3.93) and Lithuanians.

Academic rank is also a meaningful differentiator but only for the challenge 'no sufficient training opportunities for the faculty' (Figure 22). Professors significantly differ from Assistant Professors in regard to their opinion on the sufficiency of the training opportunities. In general, it is more difficult to find training opportunities for Assistant Professors ($\underline{x}$=3.91) than for Professors ($\underline{x}$=3.28).

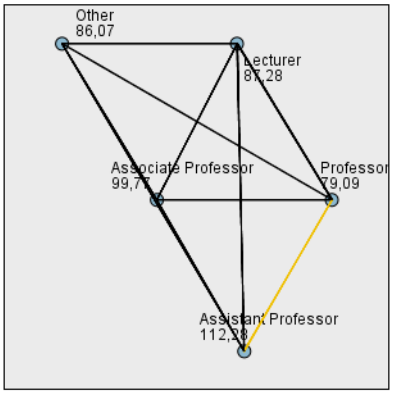

Figure 22: Pairwise comparisons of experienced challenges in learning IFRS® (no sufficient training opportunities for the faculty) across academic ranks

Accounting academicians use different sources of information to keeping them up-to-date with IFRS®. Similar to Generation Z students, materials from Internet are the main source of information to keep accounting academicians updated about the IFRS® ($\underline{x}$=4.27; Me=4.0, Mo=5.0), followed by IFRS®-related books ($\underline{x}$=3.93; Me=4.0, Mo=4.0). Unlike students who have ranked online learning courses on third place and international and domestic conferences on last place, academicians have not been perceived as a source of information online learning courses ($\underline{x}$=2.88; Me=3.0, Mo=2.0) and rely more on international ($\underline{x}$=3.41; Me=4.0, Mo=4.0) and domestic conferences ($\underline{x}$=3.36; Me=4.0, Mo=4.0). 87.2% of the academicians agree that they use materials from Internet to keep up with IFRS® changes (Figure23).

As all distributions of the variables related with the information sources used for keeping updated on IFRS® topic (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

Academic rank is not a meaningful differentiator between accounting academicians regarding the usage of different sources of information to keeping them up-to-date with IFRS® (Figure 24). There is no difference also in the usage of Internet materials across different nationalities. Regarding IFRS®-related books as a source of information (a), Lithuanians ($\underline{x}$=2.27) differ significantly from all others – Bulgarians ($\underline{x}$=3.86), Romanians ($\underline{x}$=4.00), North Macedonians ($\underline{x}$=4.18), Turks ($\underline{x}$=4.13). Differences are observed also regarding (Figure 25):

- domestic conferences (b): Lithuanians ($\underline{x}$=2.33) and Turks ($\underline{x}$=3.38), Lithuanians and Bulgarians ($\underline{x}$=3.65), Lithuanians and North Macedonians ($\underline{x}$=4.05), Romanians ($\underline{x}$=2.53) and Bulgarians, Romanians and North Macedonians;
- online learning courses (c): Lithuanians ($\underline{x}$=2.07) and Romanians ($\underline{x}$=3.60), Lithuanians and Bulgarians ($\underline{x}$=3.51), Lithuanians and North Macedonians ($\underline{x}$=4.23), Turks and Bulgarians, Turks ($\underline{x}$=2.36) and Romanians, Turks and North Macedonians;
- international conferences (d): Lithuanians ($\underline{x}$=2.47) and Romanians ($\underline{x}$=3.87), Lithuanians and Bulgarians ($\underline{x}$=3.54), Lithuanians and North Macedonians ($\underline{x}$=3.82).

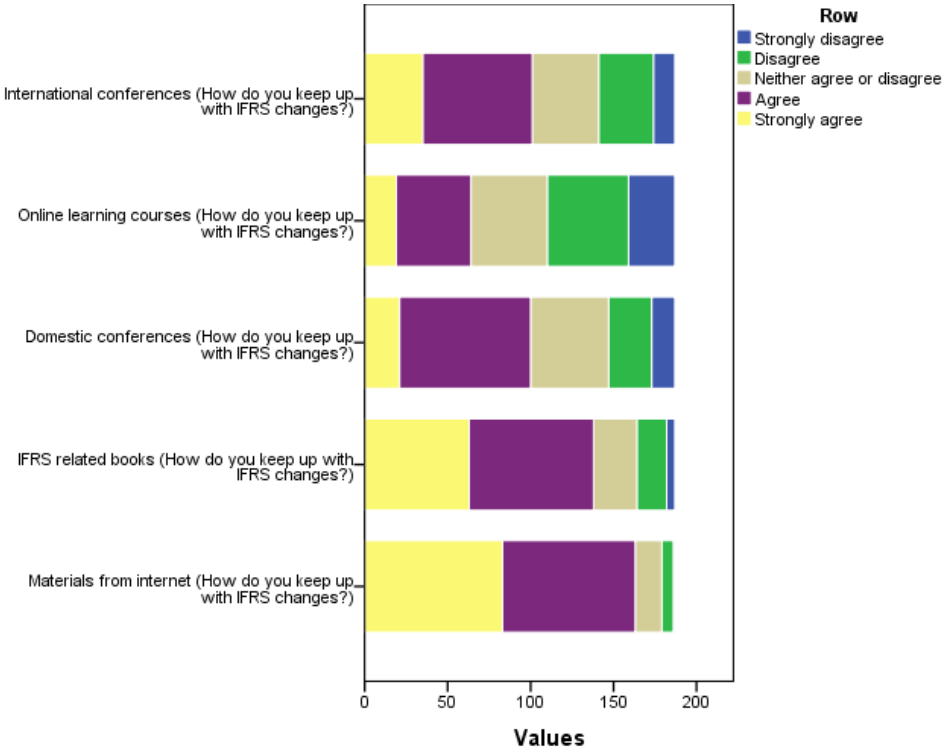

Figure 23: Distribution of scores on information sources to keeping up-to-date with IFRS®

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Materials from internet (How do you keep up with IFRS changes?) is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,531	Retain the null hypothesis.
2	The distribution of IFRS related books (How do you keep up with IFRS changes?) is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,279	Retain the null hypothesis.
3	The distribution of Domestic conferences (How do you keep up with IFRS changes?) is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,734	Retain the null hypothesis.
4	The distribution of Online learning courses (How do you keep up with IFRS changes?) is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,370	Retain the null hypothesis.
5	The distribution of International conferences (How do you keep up with IFRS changes?) is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,266	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Figure 24: Kruskal-Wallis test for differences in information sources to keeping up-to-date with IFRS® across academic ranks

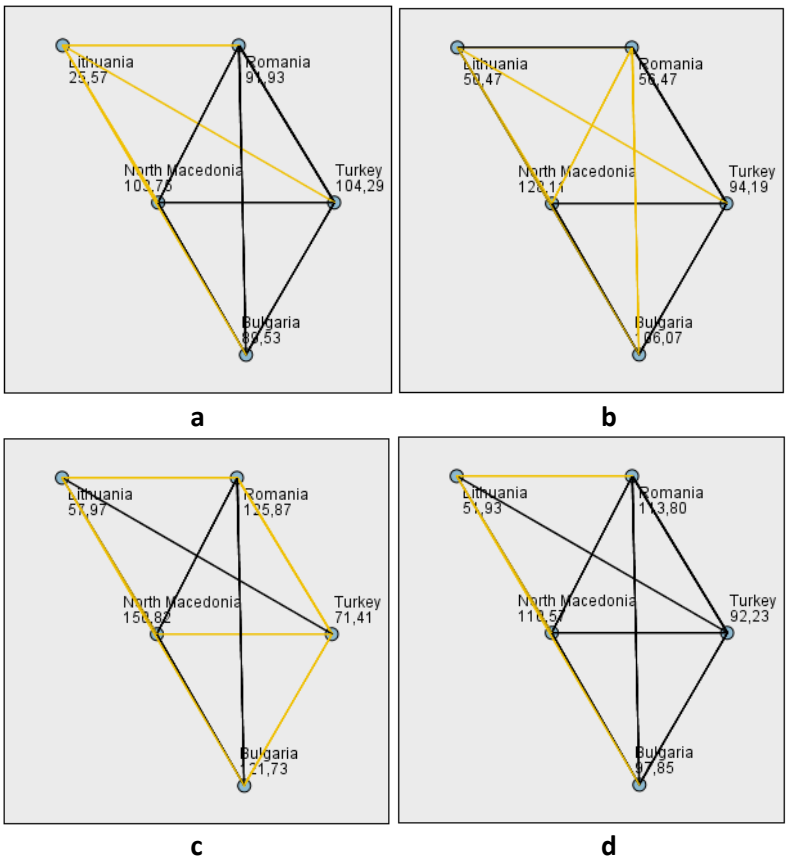

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Figure 25: Pairwise comparisons of information sources to keeping up-to-date with IFRS® across nationalities

2.2. Digital learning perceptions of academicians in HEIs

Third part of the questionnaire includes 15 five-point statements about academicians' perceptions towards digital learning. The questions were organised into 3 topics labeled as challenges of usage digital learning in IFRS® education, digital teaching perceptions, and challenges in digital teaching.

First topic is related with academicians' perceptions regarding four of the challenges of usage digital learning in IFRS® education (Figure 26, Table No. 9.1-9.2). The average academician believes that lack of adequate recourses ($\underline{x}$= 3.46; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=6.281; df=186; p-value<0.05) and absence of involvement of regulatory bodies make enforcements difficult ($\underline{x}$= 3.43; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=5.459; df=185; p-value<0.05), as well as that the implementation costs are high ($\underline{x}$= 3.23; Mo=4.0; Me=3.0; $\underline{x}$ ≠3.0; t-test=3.055; df=186; p-value<0.05). 57.8% agree or strongly agree that lack of adequate recourses makes enforcements difficult, 21.4% - disagree. 54.3% of the academicians agree or strongly agree that absence of involvement of regulatory bodies makes enforcements difficult, 20.9% - disagree. 42.8% think that the implementation costs are high, 26.2% - have an opposite position. Academicians are neutral regarding the statement that IFRS® are complex and therefore too difficult to enforce with digital teaching methods ($\underline{x}$= 2.28; Mo=3.0; Me=2.0; $\underline{x}$ =3.0; t-test=-1.659; df=186; p-value>0.05). 41.7% do not agree with that statement.

As all distributions of the variables related with the academicians' perceptions regarding challenges of usage digital learning in IFRS® education (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

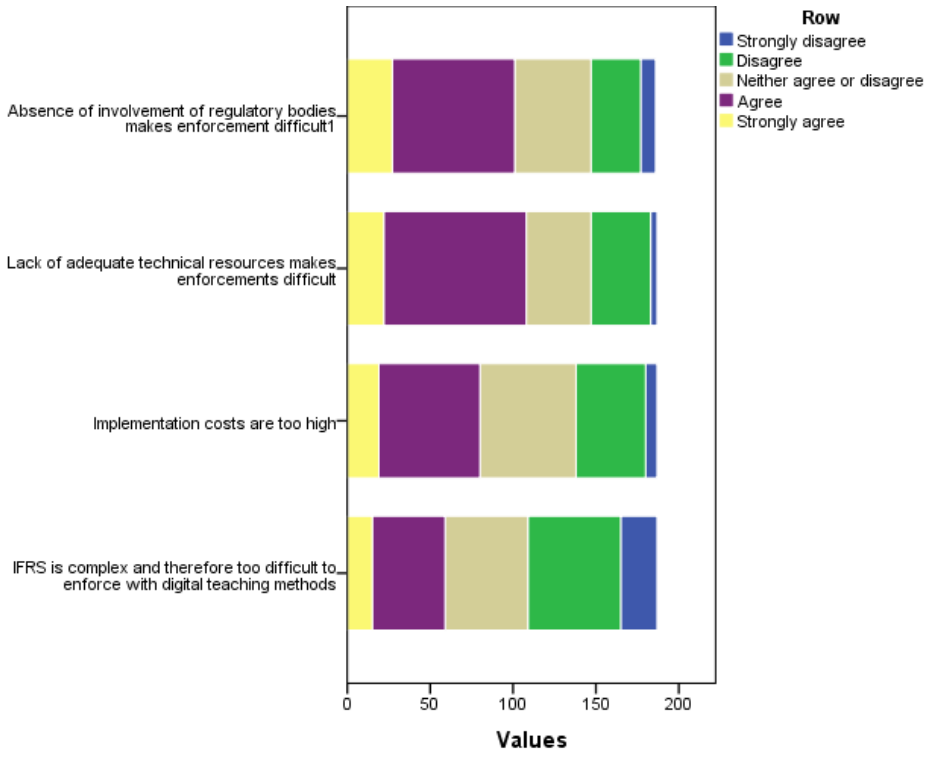

Figure 26: Distribution of scores on the challenges of usage digital learning in IFRS® education

Table No. 9.1: One-sample statistics for challenges of usage digital learning in IFRS® education

	N	Mean	Std. Deviation	Std. Error Mean
IFRS is complex and therefore too difficult to enforce with digital teaching methods	187	2,86	1,146	,084
Implementation costs are too high	187	3,23	1,029	,075
Lack of adequate technical resources makes enforcements difficult	187	3,46	1,001	,073
Absence of involvement of regulatory bodies makes enforcement difficult	186	3,43	1,074	,079

Table No. 9.2: One-sample test statistics for challenges of usage digital learning in IFRS® education

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
IFRS is complex and therefore too difficult to enforce with digital teaching methods	-1,659	186	,099	-,139	-,30	,03
Implementation costs are too high	3,055	186	,003	,230	,08	,38
Lack of adequate technical resources makes enforcements difficult	6,281	186	,000	,460	,32	,60
Absence of involvement of regulatory bodies makes enforcement difficult	5,459	185	,000	,430	,27	,59

Academic rank is a significant differentiator regarding challenges of usage digital learning in IFRS® education. The overall Kruskal-Wallis test is significant only for “Lack of adequate technical resources makes enforcements difficult”. Pairwise comparisons cross academic positions reveal significant differences in challenges of usage digital learning in IFRS® education between lecturers and assistant professor (Figure 27).

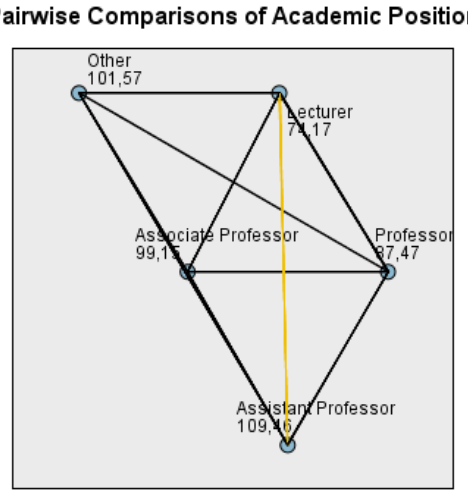

Figure 27: Pairwise comparisons of across academic ranks (Lack of adequate technical resources makes enforcements difficult)

Second topic concerns academicians' teaching perceptions towards social acceptance, effort efficiency, academicians' mobility, etc. (Figure 28, Table No. 10.1-10.2). It includes 6 statements. The average academician believes that one of the benefits of digital learning is that it is allow to revise course materials easier using digital tools ($\underline{x}$= 4.12; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=19.237; df=186; p-value<0.05). 83.4% of the academicians agree or strongly agree that the revision will be easier. Average academician possesses adequate skills to use digital applications ($\underline{x}$= 4.07; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=18.355; df=186; p-value<0.05). 80.2% stated that they possess adequate skills to use digital applications. 76.4% of academicians believe that digital learning will make use their time effectively for teaching ($\underline{x}$= 3.98; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=14.353; df=185; p-value<0.05). 50.8%of the academicians believe that they will receive social acceptance from their colleagues and their colleagues will motivate them to use digital teaching($\underline{x}$= 3.35; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=4.407; df=186; p-value<0.05).

According to 50.3% of the academicians, digital teaching is simple. 27.3% - disagree ($\underline{x}$= 3.30; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=3.801; df=186; p-value<0.05). 75.4% are eager to make use of a digital application if they get some help on how to use it ($\underline{x}$= 3.98; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=12.881; df=186; p-value<0.05).

As all distributions of the variables related with the academicians' digital teaching perceptions (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

Academic rank is not a significant differentiator for none of the challenges of usage digital learning in IFRS® education. The overall Kruskal-Wallis test is significant only for "Digital learning is simple" but pairwise comparisons does not reveal significant differences for none of the academic positions (Figure 29).

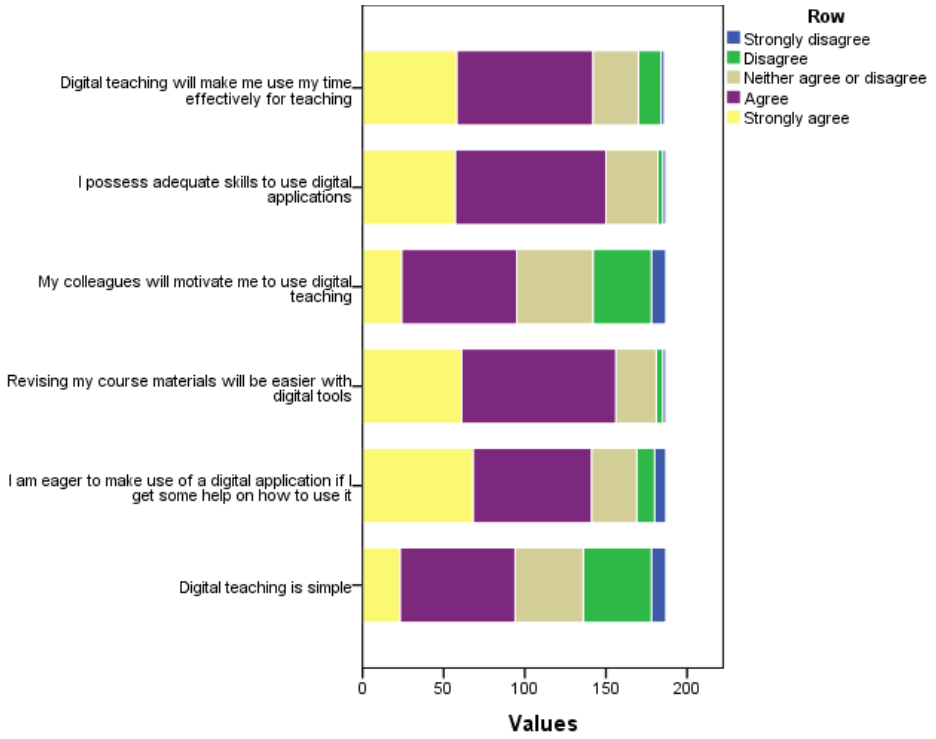

Figure 28: Distribution of scores on the teaching perceptions

Table No. 10.1: One-sample statistics for teaching perceptions

	N	Mean	Std. Deviation	Std. Error Mean
Digital teaching is simple	187	3,30	1,096	,080
I am eager to make use of a digital application if I get some help on how to use it	187	3,98	1,045	,076
Revising my course materials will be easier with digital tools	187	4,12	,795	,058
My colleagues will motivate me to use digital teaching	187	3,35	1,079	,079
I possess adequate skills to use digital applications	187	4,07	,797	,058
Digital teaching will make me use my time effectively for teaching	186	3,98	,930	,068

Table No. 10.2: One-sample test statistics for teaching perceptions

	Test Value = 3

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Digital teaching is simple	3,801	186	,000	,305	,15	,46
I am eager to make use of a digital application if I get some help on how to use it	12,881	186	,000	,984	,83	1,13
Revising my course materials will be easier with digital tools	19,237	186	,000	1,118	1,00	1,23
My colleagues will motivate me to use digital teaching	4,407	186	,000	,348	,19	,50
I possess adequate skills to use digital applications	18,355	186	,000	1,070	,95	1,18
Digital teaching will make me use my time effectively for teaching	14,353	185	,000	,978	,84	1,11

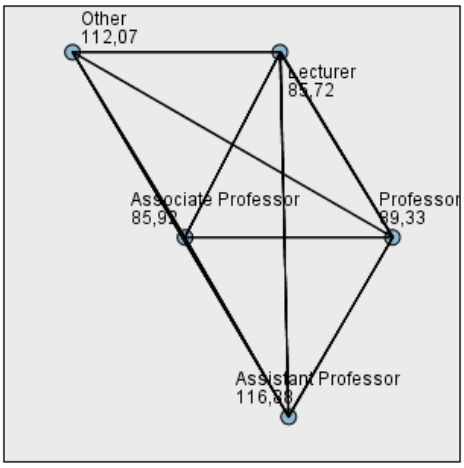

Figure 29: Pairwise comparisons of across academic ranks (digital learning is simple)

Third topic refers challenges in digital teaching (Figure 30, Table No. 11.1-11.2). It includes 5 statements. Although there are no significant differences in the average scores/distributions for each of the statements (Friedman Chi-square p-value>0.05), the top-ranked challenge is the large amount of work associated with designing and updating digital materials ($\underline{x}$= 4.05; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=17.048; df=185; p-value<0.05). 80.7% of the academicians have chosen the option agree/strongly agree. Two challenges have been ranked on second place –the necessity to overcome technical problems during course preparation and course delivery ($\underline{x}$= 3.95; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=14.386; df=185; p-value<0.05) and to dedicate time to conduct online activities with students ($\underline{x}$= 3.95; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=13.361; df=185; p-value<0.05). Both challenges have been chosen with agreement respectively by 77.4% and 75.2% of the academicians. Next challenge is the sense of excessive mechanisation of the learning process($\underline{x}$= 3.94; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=13.423; df=184; p-value<0.05). 74.0% of the academicians agree or strongly agree that digital learning provides limited opportunity to establish closer, personal relationship with students. Finally, 74.2% of the academicians agree or strongly agree that the necessity of solving technical problems reported by students is a challenge in digital teaching($\underline{x}$= 3.91; Mo=4.0; Me=4.0; $\underline{x}$ ≠3.0; t-test=13.423; df=184; p-value<0.05).

As all distributions of the variables related with the perceived challenges in digital teaching (p-value=0.000) are non-normal, the following part of the analysis will be based on non-parametric tests.

Academic rank is not a significant differentiator for none of the challenges in digital teaching. The overall Kruskal-Wallis test is non-significant for all statements in the 5-item scale (Figure 31).

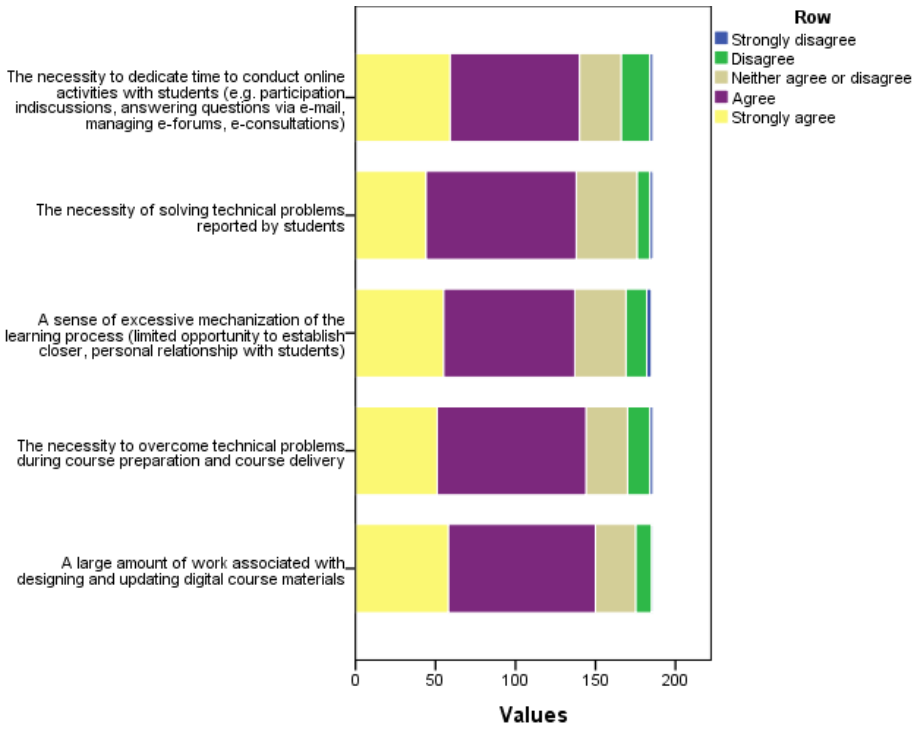

Figure 30: Distribution of scores on challenges in digital teaching

Table No. 11.1: One-sample statistics for challenges in digital teaching

	N	Mean	Std. Deviation	Std. Error Mean
A large amount of work associated with designing and updating digital course materials	186	4,05	,843	,062
The necessity to overcome technical problems during course preparation and course delivery	186	3,95	,902	,066
A sense of excessive mechanization of the learning process (limited opportunity to establish closer, personal relationship with students)	185	3,94	,948	,070
The necessity of solving technical problems reported by students	186	3,91	,840	,062

The necessity to dedicate time to conduct online activities with students (e.g. participation indiscussions, answering questions via e-mail, managing e-forums, e-consultations)	186	3,95	,971	,071

Table No. 11.2: One-sample test statistics for challenges in digital teaching

	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
A large amount of work associated with designing and updating digital course materials	17,048	185	,000	1,054	,93	1,18
The necessity to overcome technical problems during course preparation and course delivery	14,386	185	,000	,952	,82	1,08
A sense of excessive mechanization of the learning process (limited opportunity to establish closer, personal relationship with students)	13,423	184	,000	,935	,80	1,07
The necessity of solving technical problems reported by students	14,834	185	,000	,914	,79	1,04
The necessity to dedicate time to conduct online activities with students (e.g. participation indiscussions, answering questions via e-mail, managing e-forums, e-consultations)	13,361	185	,000	,952	,81	1,09

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of A large amount of work associated with designing and updating digital course materials is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,651	Retain the null hypothesis.
2	The distribution of The necessity to overcome technical problems during course preparation and course delivery is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,422	Retain the null hypothesis.
3	The distribution of A sense of excessive mechanization of the learning process (limited opportunity to establish closer, personal relationship with students) is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,340	Retain the null hypothesis.
4	The distribution of The necessity of solving technical problems reported by students is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,465	Retain the null hypothesis.
5	The distribution of The necessity to dedicate time to conduct online activities with students (e.g. participation indiscussions, answering questions via e-mail, managing e-forums, e-consultations) is the same across categories of Academic Position.	Independent-Samples Kruskal-Wallis Test	,366	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Figure 31: Kruscal-Wallis test for challenges in digital teaching across academic ranks

2.3. Reliability analysis of the questionnaire targeted to academicians

Reliability of the questionnaires targeted to academicians is also evaluated by computing Cronbach alpha coefficient for internal consistency of each of the scales.
For the questionnaire which is focused on the measurement of academicians' perceptions towards IFRS®, the reliability for the observed sets is as follow:

- Cronbach alpha coefficient for the 2-item scale 'perceived degree of academicians' expertise', which is represented by the perceived knowledge and perceived practical experience, is 0.716. The value is above the threshold and confirms reliably of the scale.
- Cronbach alpha coefficient for the 8-item scale 'perceived usefulness of pedagogical approaches for IFRS® learning' is 0.837 which is more than the recommended value of 0.7.
- Cronbach alpha coefficient for the 9-item scale 'perceived difficultness of challenges for teaching IFRS®?' is 0.881 which meets the requirements of the methodologists as it is more than 0.7.
- Cronbach alpha coefficient for the 7-item scale 'perceived usefulness of IFRS® learning tools' is 0.811 which meets the standards for internal consistency.
- Cronbach alpha coefficient for the 4-item scale 'language and translation issues regarding IFRS®' is 0.731 which meets the standards for reliability.
- Cronbach alpha coefficient for the 5-item scale 'perceived challenges in teaching IFRS®' is 0.806 which exceeds the recommended value of 0.7.
- Cronbach alpha coefficient for the 5-item scale 'keep up with IFRS® changes' is 0.833 which exceeds the recommended value of 0.7.
- Cronbach alpha coefficient for the 4-item scale 'perceived challenges of using digital teaching in IFRS® education' is 0.755 which exceeds the threshold value of 0.7 for internal consistency.

For the questionnaire which is focused on the measurement of academicians' perceptions towards digital learning, the reliability for the observed sets is as follow:

- Cronbach alpha coefficient for the 6-item scale 'digital teaching perceptions' is 0.728 which is more than the recommended value of 0.7.
- Cronbach alpha coefficient for the 5-item scale 'perceived challenges in digital teaching' is 0.774 and it is more than acceptable as it exceeds the threshold value of 0.7.

The overall conclusion is that the questionnaires targeted to academicians are reliable.

3. KEY GENERALISATIONS DERIVED FROM THE SURVEYS

3.1. Key generalisations derived from the survey targeted to the Generation Z students in HEIs

Some of the **key generalisations** derived from the first survey, which was targeted to the Generation Z students in HEIs and focused on the measurement of their perceptions towards IFRS® and digital training, are as follow:

- Most of the students who have completed the questionnaire defined themselves as knowledgeable on IFRS® but inexperienced in their practical implementation.
- Study cycle is a very significant differentiator between accounting students in regard to the importance they have assigned to the learning of IFRS®. Postgraduate students assign more importance on the learning of IFRS® than undergraduates.
- There is a significant difference in the ratings assigned to the different learning tools and materials by the students from different study cycle. In general, Master students have rated case studies as more useful tool than Bachelor students and Doctoral students have rated webcasts as more useful tool than Bachelor students.
- Accounting students experience different challenges in learning IFRS®. The challenge they have mentioned most frequently as a major/moderate concern is the lack of sufficient examples and exercises illustrating differences between National standards and IFRS®.
- Students from different study cycles use different information sources to keeping them up-to-date with IFRS®. Materials from Internet are main information sources but it means more for PhD students than for Bachelor students.
- Students from different study cycles do not differ in their perceptions towards digital learning performance expectancy.
- There are no significant differences between female and male students in their personal way of thinking and perceptions regarding distance learning usefulness and effects on career development, teamwork, and comprehension of the course content.
- Generation Z students from different study cycles and gender do not differ regarding their intention to use digital learning. There are no significant differences in the intention to use digital learning between undergraduates and postgraduates, as well as between male and female students.
- Generation Z students from different study cycles do not differ regarding their creativity too.

3.2. Key generalisations derived from the survey targeted to the academicians in HEIs

Some of the **key generalisations** derived from the **second survey**, which was targeted to the academicians in HEIs and focused on the measurement of their perceptions towards IFRS® and digital training, are as follow:

- Most of the academicians who have completed the questionnaire were knowledgeable on IFRS® and experienced in their practical implementation.
- Academic rank is a significant differentiator between accounting academicians in regard to their perceptions of knowledge on IFRS®.
- Most of the accounting academicians (91.4%) stated that their HEI has undertaken some steps to incorporate IFRS® in curriculum.
- Accounting academicians found as useful all pedagogical approaches for IFRS® teaching.
- Accounting academicians experienced some challenges in teaching IFRS®. According to 59.7% of them, insufficiency of practices in IFRS® teaching is a major challenge or moderately a challenge.
- There is a significant difference in the ratings assigned to different learning tools and materials by the academicians from different nationalities. In general, Turkish, Romanian, Lithuanian and Bulgarian academicians have assigned highest rating score to case studies, North Macedonians – to videos. Lithuanians have assigned lowest rating score to textbooks and smart boards, North Macedonians – to specific software, Turkish, Romanian and Bulgarian academicians – to smart boards
- 56.2% of the accounting academicians believe in consulting the English version of IFRS® despite the availability of translations in their local language.
- Accounting academicians use different sources of information to keeping them up-to-date with IFRS®. Similar to Generation Z students, materials from Internet are the main source of information to keep accounting academicians updated about the IFRS®.
- Regarding to the digital teaching, the top-ranked challenge for academicians is the large amount of work associated with designing and updating digital materials. For this challenge, 80.7% of the academicians have chosen the option agree/strongly agree. Two challenges have been ranked on second place – the necessity to overcome technical problems during course preparation and course delivery, and to dedicate time to conduct online activities with students.

The above-mentioned generalisations make us conclude that a change in the pedagogical approach for IFRS® teaching and learning is necessary. We offer a principle-based IFRS® education model.

4. PRINCIPLE-BASED IFRS® EDUCATION MODEL

Knowledge management allows better planning of the IFRS® training process. The peculiarities of the cognitive process and the essence of the teaching material under IFRS® are a prerequisite for the presence of a number of factors that may affect the nature of training under IFRS®. The dynamics in the development of social and economic processes have a significant impact on the application of IFRS®. The practical knowledge and skills that learners acquire should be in line with their increased requirements and the ability to navigate the significant amount of economic and accounting

information. The role of the trainer must take into account the change in the expectations of the learners, the increase of the scientific knowledge and the accelerated development in the competence model for the application of the acquired knowledge and skills.

The influence of these factors requires modern training to comply with some outlined basic requirements for it. Namely:

- **Ensuring personality development**. It is necessary to combine in unity the processes of education and upbringing, which ensure the formation of personality and developmental learning.
- **Clear theoretical foundations of modern education, responsibility for the achievements of science and technology.**
- **Training should be based on competencies.** The concept of competence-based learning should be the focus of trainers' future work, without ignoring the substantive aspect of university teaching. Usually these basic skills or competencies are defined as the results of the educational process and therefore form part of the conceptual change “from a content-based approach to a competency-based approach to learning outcomes”.
- **Complexity and integrativeness of the acquired knowledge;** The training process to ensure the complexity and stability of the acquired knowledge and skills to a degree of high professionalism.

"The integrated approach is a strategy of human thinking and action, through which he studies and stimulates the integrative processes in systemic objects and in himself in accordance with the general laws of natural and social reality."[1] Integrative tendencies and processes play the role of a link between the logic of scientific knowledge and the needs of the studied disciplines. The use of the integrated approach in the pedagogical process develops the potential of the learners, motivates them for more in-depth study of the disciplines, shows the practical application of the acquired knowledge in real life. The integrated approach contributes to the priority development of the logical and critical thinking of the learners, development of their initiative and ingenuity, acquisition of the ability to handle various sources of information freely. It is a means of synthesizing the knowledge of learners in beliefs and behaviour, as a multifaceted person capable of developing in life. This increases the learning outcomes and the effectiveness of the learning process as a whole.

- **Communicativeness of learning** - Learners gain new knowledge and skills in the process of active interaction and communication with the environment. New knowledge is formed by comparing the concepts studied and the relationships between them with what has already been learned. The broad social context of the students' work in a group and the communications between different groups help to acquire in-depth knowledge and skills. The new concepts are learned not just by "presenting" and "reading" the learning materials, but the learners are forced to analyse, be active (when participating in learning activities and communication) and think critically;
- **Dynamics, timeliness, adaptability and adequacy of training.** The requirement reflects the degree of conformity of the training to the real needs of the society and its ability to react adequately to their changes.
- **Stimulating the creative activity of students.** To build an organisation for involving students in practical activities that stimulate their creative activity. Students need to be encouraged to work in a team and learn to make an accurate assessment of their own contribution. To be

[1] **Nikolov, P.**. *Integralniyat podhod v pedagogicheskiya proces. Sofia: Narodna prosveta.*

involved in project activities, where they can develop their research skills, show initiative and creativity and argue their position.

- **Use of IT in teaching and assessment.** The application of IT in training allows to reveal the training not as a process of passive consumption of content, but as a process based on activities conducted in an interactive environment and work situations. Thus, students and trainers are actively involved in the joint solution of specific tasks and influence their behaviour through two-way communication.

4.1. The role of digitalisation in the learning process

Over the past few years, the concept of digital transformation (digitalisation) has formed a new paradigm in all spheres of socio-economic life, both nationally and internationally. In its essence, digitalisation is the introduction of modern achievements of information technology in the implementation of various activities.

The process of digitalisation of training is proceeding at a fast pace. Communication between trainers and trainees, in the process of performing specific tasks, is carried out through new forms and opportunities for information transfer. Digital tools and technologies are used to create entirely new learning processes or to improve existing ones.

The conversion from analogue to digital presentation of information is a challenge for training, in general and for training under International Financial Reporting Standards (IFRS®). The digital transformation in IFRS® training is reflected in the methods and tools that will be used. They must be applied in a way that supports the acquisition of knowledge, skills and competences in the field of financial reporting.

Different types of factors influence the process of digitalisation of education. The most important of them in recent years are:

Increased use of information technology and artificial intelligence in a wide range of industries and activities. In order to ensure the demand for qualified personnel by business, educational institutions should organize training that is adequate to modern reality. For example: the use of various simulation models regarding risk management, according to the provisions of IFRS®, as well as the performance of in-depth financial analysis of the results of the activities of the enterprise is practically applicable and effective through the use of information technology;

The COVID-19 pandemic. This pandemic has left its negative mark on economic systems around the world. In order to achieve a balance between preserving the life and health of those employed in education and at the same time ensuring continuity in the learning process, the Covid-19 crisis has become a kind of catalyst for the introduction of information technology and its use in the learning process.

4.1.1. Features of the digital environment for teaching and learning

The digital environment is a virtual space in which the exchange of information between trainers and learners takes place. This is where information that is used for training is stored, processed and presented. Computer and mobile devices are the main tools used to work in a digital environment.

A digital environment requires participants to have additional skills and competencies (digital literacy). They are expressed in two directions. The first direction is for the participants to be able to use digital technologies and devices for searching, processing, selecting and summarizing information. The second direction is regarding the security of information and the observance of the ethical norms of the digital environment. Learners need to "master ideas, communicate freely, discuss problems, create and receive support"[2].

On this basis, there are concepts about the training methodology. None of them, however, is able to fully meet the requirements of different generations of students.

In the field of education, the digital transformation is carried out using information technologies for the course of various activities and processes. Building a digital learning environment is a perceived necessity over time. In this way the focus has shifted from the traditional nature of education to learning using information technology, which achieves flexibility in the learning process and creates conditions along with the acquisition of knowledge to form and develop different personal qualities of students.

In the middle of the last century, the American trainer Edgar Dale developed the so-called "Cone of Experience", through which he arranged the individual learning methods according to the degree of effectiveness (Figure 1)[3].

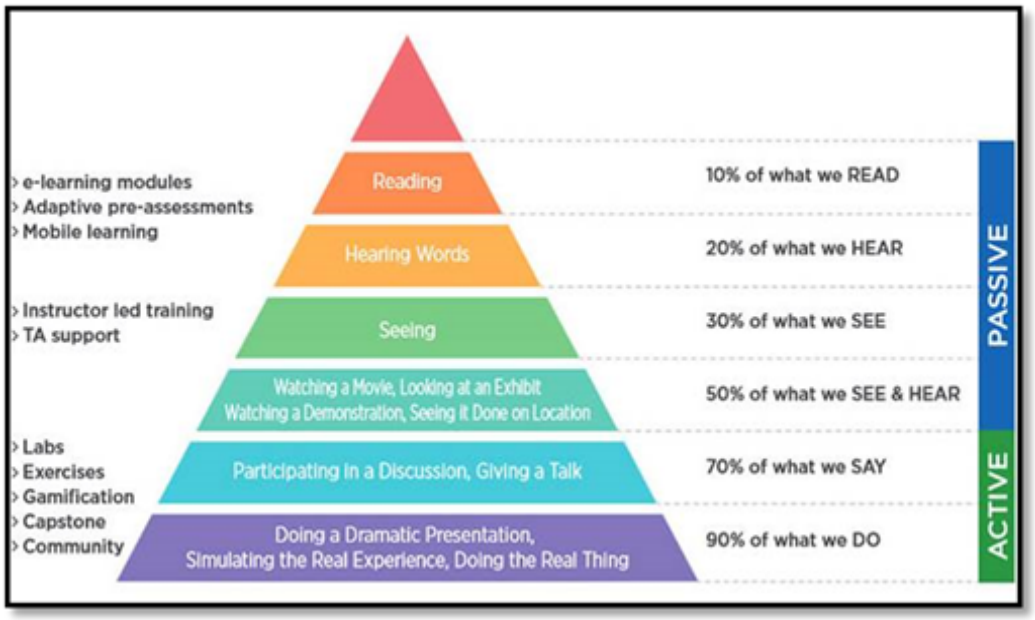

Figure 1: Edgar Dale's experience cone[4]

As can be seen from the figure when using the different learning options, the percentage of memorization and acquisition of knowledge is different. It is the largest in the forms of the so-called active learning, for which conditions are provided by information technologies.

Based on the presented views, the following features of learning in a virtual environment can be presented:

[2] **Gilster, P.** *Digital literacy.* 1997.

[3] **Biewener, D**. *Has eLearning Killed the "Learning Cone"?* 2021. Retrieved [14.11.2021] from https://www.simplilearn.com/has-e-learning-killed-the-learning-cone-article

[4] Retrieved [15.11.2021] from https://www.simplilearn.com/has-e-learning-killed-the-learning-cone-article

- Provides a teaching approach, which is a prerequisite for increasing the interest of students;
- Providing access to resources for both trainers and students, regardless of time and place;
- Working in a digital environment helps students to acquire skills and qualities that are useful for their future realization in the labour market (teamwork on projects; creativity; initiative).

Based on the ideas of Edgar Dale, specialists from the National Training Laboratories (NTL), in the late sixties, developed the "Pyramid of Learning". In it, certain methods such as "lecture", "reading", "audio-vision", "demonstration", "discussion", "presentation" and "simulation" are assigned percentages for learning achievement. The "learning pyramid" is not based on research, but based on the processes involved in the digitalisation of learning[5].

The main difference between the two concepts is in the methods for "Active Learning". The reason is the transition to a digital environment and the tools for practice and teaching are transformed into making and presenting "presentations" and creating simulations of various processes that are related to learning.

The presentation falls into the active form of learning, as it requires good preparation and in-depth knowledge of phenomena and processes. This increases the understanding of them and the memory of their specifics. Simulations are required when it is necessary to create a real process or recreate a real process. The application of the simulation falls into the active learning by achieving a deep theoretical understanding and practical application of the learned competencies.

Active learning is typical for application on the education of the last studied generation - generation Z. Their way of thinking and perceptions are key to determining the principles of IFRS® training.

4.1.2. Characteristics of the Generation Z as users of the educational service

Generation Z, also called the "digital generation"[6], differs in its requirements and understandings of the ways in which it must be learned. Leading in their behaviour is that they are the bearers of change. Their dominant values of independence and freedom emphasize the way in which the study material is studied. High incomes, respect and experiences are a priority sought here and now, not postponed.

Generation Z is curious and inquisitive, constantly looking for new things for learning and development, but not in the conservative classic way. This generation prefers not to waste time on something that does not guarantee them a secure future. Many of them combine training with real practical experience. The digital generation is "surfing" the Internet and looking for new information that is pragmatic and aimed at solving a specific problem.

Therefore, the IFRS® training model, implemented in a digital environment, should be based on principles that are the basis for the use of new methods and tools, presented in a certain way, provoking the interest of the trainees. They must be able to be implemented in a digital environment so as to meet the requirements of Generation Z - to learn, to acquire skills and competencies, while gaining practical experience.

[5] **Letrud, K**. *A rebuttal of NTL Institute`s learning pyramid.* Education, Vol.133, №1. 2012 p. 117.
[6] **Prensky, M.** *Digital Natives, Digital Immigrants.* 2001.

IFRS® training needs to embrace new technologies and accompany the overall training of learners. The constant contact with the digital technologies that shape the views, skills and way of thinking of the Z generation is the basis on which the principle-based approach to IFRS® training must comply.

The principle-based model of training should be aimed at stimulating:

- Opportunities for learners, based on a variety of sources and methods, to have freedom in the formation of knowledge and competencies. On this basis, the elements of the principle-based model should be oriented towards the assessment of learners' results and progress.
- Mentoring[7] to be used to increase the effectiveness of training and mutual learning, which will facilitate the adoption of the conceptual framework of IFRS® and its practical application. The model will stimulate the "asymmetry in the learning process", which is associated with the involvement of young people in learning to form knowledge and experience.
- Their inherent tendency to express and sense the new and unusual. In this way, learners will be very successful in the transfer of knowledge and the application of effective teaching methods and technologies.
- Autonomous learning[8], regardless of time and place, using their competencies to work with new learning tools, gaining access to multiple information sources, acquiring knowledge and gaining experience through their own actions. Generation Z wants to choose only what to study, where and when to study it, i.e. to manage the learning process autonomously, and not to be a passive object of it. In the model, the predominant learning style should be through experience. It follows that effective learning should include more application of knowledge and skills, participation and experimentation, activities related to experience and self-conclusion, more visual demonstration and less theory, explanation, and passive observation.
- Their cognitive abilities by emphasizing the visually-kinetically oriented means. The Z generation is characterised by a short interval of concentration, lack of patience for the perception of details, rapid boredom and loss of interest, difficult completion of what has been started. Therefore, the principle-based model of IFRS® training should stimulate nonlinear lateral, mainly figurative thinking, with speed and multichannel in perceptions. Generations Z have a photographic memory and also remember much more and more sustainably through hearing, movement and picture than through reading.

In training and assessing their knowledge and skills, it should be taken into account that Generation Z representatives are most intolerant of the lack of clear instructions, incorrect task setting, unrealistic deadlines, unprincipled, unfair and discriminatory treatment by trainers.

4.2. Principles of teaching, characterising the principle-based model of teaching and learning

The principle-based approach provides greater flexibility and adaptability in the learning process in order to achieve on the one hand increasing the interest of the trained audience, and on the other

[7] **Pokolencheski profili. Profil na pokolenie Z**, *Retrieved [15.11.2021] from https://activeageing.bia-bg.com/bg/analyses/generations/profileZ/*

[8] **Pokolencheski profili. Profil na pokolenie Z**, *Retrieved [15.11.2021] from https://activeageing.bia-bg.com/bg/analyses/generations/profileZ/*

hand to present to the learners the basic, basic standards, in order to achieve stable foundation with the possibility of upgrading over time.

4.2.1. Bloom's taxonomy

The Bloom Taxonomy is adopted in the training (See Figure 2). It is a combination of principles through which learners acquire the necessary skills and competencies. Taxonomy classifies learning in a way that helps organize learning and plan training actions. The hierarchical pyramidal abstraction of educational principles aims for learners to achieve their skills, moving sequentially from low to higher levels of knowledge.

The six levels of knowledge in Bloom's Taxonomy have their specific application and relate to certain skills[9]. The lowest level (Remembering) includes the basic knowledge in which learners are able to: list and remember stages, elements, types; define and indicate concepts, processes and phenomena. The next level (Understanding) contains skills for: comparison and differentiation; grouping and classification; explanations. The "Applying" level includes skills for applying actions, demonstrating and defining processes. The "Analysing" level contains skills for: testing hypotheses; forecasts and analysis of phenomena; detection errors and deviations. Level "Evaluating" contains skills for: planning and creating; solved tasks and formulating conclusions based on the achieved result. The highest level of knowledge (Creating) contains complex thinking, in which trainers are able to make a choice of options, to comment, argue and evaluate their choice.

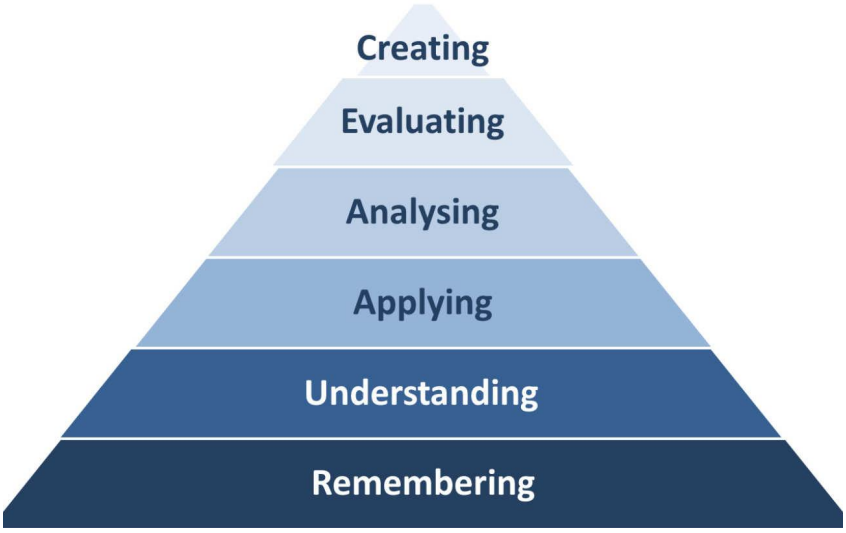

Figure 2: Bloom's taxonomy

4.2.2. Principles in IFRS® training

[9] **Armstrong, P.** *Bloom`s Taxonomy. Vanderbilt University Centre for teaching. 2010 Retrieved [10.11.2021] from* www.cft.vanderbilt.edi/guides-sub-pages/blooms-taxonomy.

The organisation of the learning process should be based on certain initial rules and bases, the so-called principles. The main goal in defining these principles is to meet them as much as possible on the one hand to the requirements for the learning process, and on the other hand to be consistent with the semantics of the subject matter, which is included in the program. The content of International Financial Reporting Standards (IFRS®) is based on principles, which in turn creates specifics in the structuring and arrangement of this content for educational purposes. Therefore, the specifics of the content of IFRS® also determine the principles on which the model of their teaching should be based. These considerations can be presented as follows:

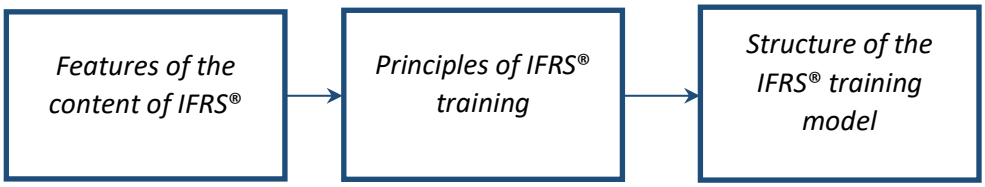

Figure 3: Relationship between the peculiarities of the content of IFRS® and the learning process

In addition to the general (basic) principles that are inherent in the general theory of pedagogy, specific principles should be defined, which are based on the specifics of the subject matter related to IFRS®.

These principles are the starting point of the educational process. They determine the organisation of the educational process on both sides - trainers on the one hand and students on the other. The benefits of having principles as a basis for the proposed educational model are expressed in the following directions:

1. The principles achieve selection and systematization of the educational content to be taught.
2. Choice of methods and means for presenting the educational content in the respective discipline.
3. The formation of a clear criteria base of requirements for assessing the knowledge of students.
4. Determining the expected competencies and skills that are acquired after completing the course, in view of the needs of the business.

For the purposes of IFRS® training, the following specific principles can be defined:

- **Comprehensibility and clarity**. The content of the standards is distinguished by the use of a specific conceptual apparatus. This, in turn, requires trainers to present the material in the simplest possible way, which implies not only its mechanical learning, but its understanding. Clarity, as a principle of IFRS® training, is expressed in the use of examples related to the application of specific formulations. Applying this principle will allow learners to become familiar with the specific characteristics of IFRS®. The content of the exhibition should be logically arranged and direct students not only to the semantic meaning of concepts, but also to the relationship of standards with the real economic environment.
- **Consistency and interconnectedness**. This principle of IFRS® training is a consequence of the fact that the content of the studied accounting standards is characterised by interdependence between the individual standards (a concept in a standard is given as a definition in a preceding standard, as the numbering of this standard). When developing the curriculum, the existence of specific concepts that are not characterised should not be allowed. The application of this

principle allows providing an opportunity for independent creation of learning outcomes; predominance of visual information over speech and text; comprehensibility of the sequence and controllability of the rates of information flow; possibility to choose the pace and rhythm of training; possibility to choose the volume of the material.

- **Practical applicability**. According to the principle of flexibility, the learning content should be mainly practical. Avoid too long and unnecessary theoretical explanations that make it difficult to understand the matter related to the standards. The main purpose of this principle in building the learning process is to teach what will actually be useful in the future professional realization of students. In the training under IFRS® it is necessary to have reliable and pedagogically substantiated information. The training tools should combine the developed teaching materials with a developed information retrieval system. The training should take into account the age characteristics, cognitive abilities, differences in the intellectual training of students.
- **Relevance**. One of the specific features of accounting standards is that they are a dynamic matter. Changes in the content of the standards are made periodically. Some of these changes are related to the repeal of a specific standard and the entry into force of a new standard, while others concern basic provisions related to the application of the standards. The design of the content and the conduct of the training process should take into account the latest changes in the content of the standards. An important part of the training is the creation of skills for searching for information in Web documents. There are web pages with a large amount of textual information, and in training the search for information on the web can be related to a specific subject, research project or self-preparation of students.
- **Analytical** - certain standards imply an alternative in the reporting of specific operations - usually related to the subsequent valuation of certain assets. The presentation of the cases that give rise to an alternative in the reporting should be accompanied by an analysis of the specific situations in which the use of one or another approach is appropriate.
- **Creativity** - this principle can be defined as one of the most important. It is expressed in the development of the ability of learners to be creative in solving specific cases related to the application of IFRS®.
- **Teamwork (Communicativeness)** - the training process should involve teamwork of trainees related to the application of IFRS®. Teamwork helps to unite the group of trainees, as well as to develop other qualities necessary for their future professional realization, namely: tolerance, compliance with the opinion of other members of the group.

This group of specific principles is open and transitional. It should be amended, both in terms of the number of principles and in terms of the name and essential characteristics of each of them, in order to bring them into line with the specific socio-economic conditions.

4.3. Elements of the principle-based model for teaching and learning: Characteristics and goals

The emphasis in the principle-based learning model is the relation between the specific learning toolkit and the competency model, which will help learners to seek answers to the “why” question using the conceptual framework for financial reporting. The model makes it possible to understand and critically examine inspections even after the application of IFRS®. The aim is for students to form lasting knowledge that will allow them in their professional realization to make more informed financial

judgments. Students will learn the features of IFRS®, through which to justify financial reporting and clearly apply economic concepts. Hodgdon et al. asserted that accounting educators can enhance the ability of students to apply the professional judgment by relating the concepts in the IASB Framework to specific IFRS® requirements. [10]

The methods of teaching through delivering lectures and the passive, mechanical perception of information by students cannot fully cover the requirements of the business in terms of trained personnel in the field of accounting.[11]

The teaching of IFRS® should upgrade on the memorisation of current standards and requirements and be related with the promotion of the adoption of approaches through which students can develop a deeper understanding of the economic nature underlying the accounting transactions and the framework concepts on which they are based.

The emphasis of the proposed model of education is placed on the development of analytical and creative abilities of students in the digital environment, in combination with the ethical norms of the accounting profession.

In this way, students will have a better understanding of the nature and objectives of financial reporting.

The development of the model follows the logic of **The Revised Two Factor Study Process Questionnaire**. Its essence is the ability of trainers to evaluate, on the one hand, their own teaching and the learning of students on the other.[12]

When proposing a specific structure of the IFRS® training model, the following are used as starting points and guidelines:

- Standards and guidelines for quality assurance in the European Higher Education Area (ESG).
- The set of knowledge, skills and competencies - personal and professional, corresponding to levels 6B, 7 and 8 of the European Qualifications Framework.
- Higher modern requirements of the users of staff regarding the knowledge, skills and competencies that the candidates for accounting profession must have.

The structure of the principle-based learning model can be represented schematically as follows (Figure 4).

Modular training is envisaged, consisting of the following three modules:

First module: Theoretical training.

1. **Presentation of the conceptual framework for financial reporting on which IFRS® are based.**

The framework addresses the concepts underlying the information presented in general purpose financial statements. It is a "coherent system of interrelated objectives and principles on the basis of

[10] **Hodgdon, C., Hughes, S. B., & Street, D. L.**. *Framework - based teaching of IFRS® judgements. Accounting Education: An International Journal, 2011, 415-439.*

[11] **Siskos, Dimitrios V.** *Accounting Education in Greece During the GFC (2009-2016), 2019. EMRY-RIDDLE Aeronautical University, Scholarly commons, p. 54. Retrieved [13.12.2021] from https://commons.erau.edu/*

[12] **Dong, Nanyan & Bai, Meng & Zhang, He & Zhang, Junrui.** *Approaches to learning IFRS® by Chinese accounting students. Journal of Accounting Education.* 2019. *(Abstract) Retrieved [14.12.2021] from* https://www.researchgate.net/

which it is possible to develop consistent accounting standards"[13]. Students who understand the conceptual framework will be able to make more informed judgments about financial reporting because they will understand what financial reporting is trying to achieve and how to achieve it. As Barth stated "The accounting profession needs persons who are well grounded in economic concepts and who want to make well-founded professional judgments." [14] Incorporating these competencies into the IFRS® course will make it possible to restore the importance of accounting education programs and to fill the existing gap between accounting education and professional practice.

2. Presentation of the main theoretical positions in the specific IAS / IFRS®

IAS / IFRSs® are a "set of professional rules for identifying, classifying, recognizing, measuring, revaluing and presenting elements of financial statements, as well as disclosure requirements"[15]. The relation of the main business operations, the accounting of which is regulated in the respective standard, with the separate components of the financial statements should be clearly traced here. Larson and Street also state that the IFRS® Foundation emphasizes and promotes approaches to teaching IFRS® that encourage students to develop a deeper understanding of the economic substance underlying accounting transactions and the IASB framework concepts upon which IFRS® are based.[16] The conclusion that can be drawn is that when financial reporting requirements are taught in the context of the conceptual framework, accounting students have a better understanding of the nature and objectives of financial reporting. As Persons argues, the principle-based approach to teaching IFRS® emphasizes the question of "why" rather than just "what" and "how", using a conceptual framework for understanding and as a basis for critically examining the advantages and disadvantages of standards. [17]

Second module: Practical application of the provisions related to the IAS / IFRS® by solving various practical cases.

The aim of the case studies should be to emphasize both the technical requirements of the standards and the conceptual foundations (principle-based logic)[18]. It is planned to solve two groups of cases:

- cases where direct application of the provisions of the applicable IFRS® is required. The purpose of these cases is to acquire skills for practical application of the provisions of the applicable accounting standards. For example, practical cases are developed on: initial valuation, depreciation, subsequent valuation and depreciation of property, plant and equipment and other cases. The solution of the practical cases requires, along with the specific value calculations, to reflect the interrelation of the value effects of the specific business operations (purchase, sale, revaluation, etc.) in the separate components of the financial statements.

[13] **Bozhkov, V., Simeonova, R., & Ivanova-Kuzmanova, G.** *Schetovodni kontseptsii I standarti .* Svishtov: AI "Tsenov",2020.

[14] **Barth, M. E.** *Global financial reporting: Implications for U.S. academics. The accounting Review, 2008, 1159-1179.*

[15] **Bozhkov, V., Simeonova, R., & Mihaylova, R.** *Standarti za predstavyane na finansovi otcheti.* Svishtov: AI "Tsenov",2016.

[16] **Larson, R. K., & Street, D. L.** *IFRS® teaching resources: Available and rapidly growing. . Accounting Education: An International Journal, 2011, 317-338.*

[17] **Persons, O..** *A Principles-Based Approach for Teaching International Financial Reporting Standards (IFRS®). Journal of Instructional Pedagogies (AABRI),2014, 1-13.*

[18] **Saito, M., Hiramatsu, K., & Mayangsari, S.** *Accounting Education for the Implementation of IFRS® in Indonesia . International review of business, 2012, p. 1-21.*

- simulation cases, the main purpose of which is based on an alternative of solutions, the students to choose the best solution in their opinion, arguing for the choice made. The purpose of these cases is based on the formed theoretical knowledge and practical skills regarding the application of IFRS® students to find the best solution for the company in view of its current financial statement.

Examples of cases from the second group are the presentation of different possible depreciation methods, different approaches to revaluation. Students should analyse their effects on the components of the financial statements and, on this basis, analyse the financial condition arising from these effects in order to select the most appropriate method / approach to apply. According to Sunder, alternative accounting for business events enables students to understand the importance of judgment while developing their critical thinking skills.[19] This module is related to the development of creative training techniques, such as teamwork, case analysis, etc. It is also appropriate to use the 'out-of-classroom experience' approach here, such as internships, fieldwork, etc. These two modules should apply active learning, which means that the student is engaged, actively involved and invests time and energy in their learning.
There are many ways to achieve this. Learning activities include learning practical examples, group projects, discovery tasks, problem solving, practice, assessment and self-assessment, fieldwork, creativity and criticism.

Third module: Assessment of the formed knowledge and skills.

The process, the degree of participation and the achieved expected results are evaluated, and the evaluation is complex. Various approaches, methods and tools are used to measure the learning outcomes - not only tests, but also open discussions, game methods, individual tasks, project-based learning, presentation approaches, independent solving of cases from the two groups described above and others.

The proposed structure of a principle-based educational model is characterised by the following features:

- **Integration of the elements (modules) of the model.** Integration is expressed in the interconnection of the individual elements of the educational model in order to achieve its main goal.[20] The main goal of the educational model under IFRS® is the formation of knowledge, skills and competences. When editing the model, the interrelationship between the individual modules must always be observed in order to achieve this goal.
- **Methodological orientation.** The methodological orientation is based on the idea that a scientific understanding of the subject must first be established so that an increasingly complex practical application can be developed upon it.[21] In the proposed model the methodological orientation passes through the following sequence: acquaintance with the conceptual bases of the standards; basic reporting and recognition rules; application of standards by students.

[19] **Sunder, S.** *Adverse Effects of Uniform Written Reporting Standards on Accounting Practice, Education, and Research. Sunder, S. 2010. "Adverse Effects of Uniform Written Reporting SJournal of Accounting and Public Policy , 99-114.*

[20] **Zhou, Zhao.** *Integrated Education Model of Information Technology and Financial Accounting. Integrated Education Model of Information Technology and Financial Accounting, 2017, p.6771.*

[21] ***Sun, Zhuo, Kremer, H.-Hugo*.** *Accounting Education and Digital Transformation – Insights in Study Programms. CARF Luzern 2020. Controlling.Accounting.Risiko.Finanzen. Retrieved [14.12.2021] from www.hslu.ch/carf*

- **Active feedback is of paramount importance in bringing these three modules together.** It is necessary to establish and maintain an effective, dynamic and transparent feedback between trainers and students. Students should be provided with feedback - reviews, comments, notes and recommendations from the trainer, which, if necessary, should be related to consultations on the learning process.

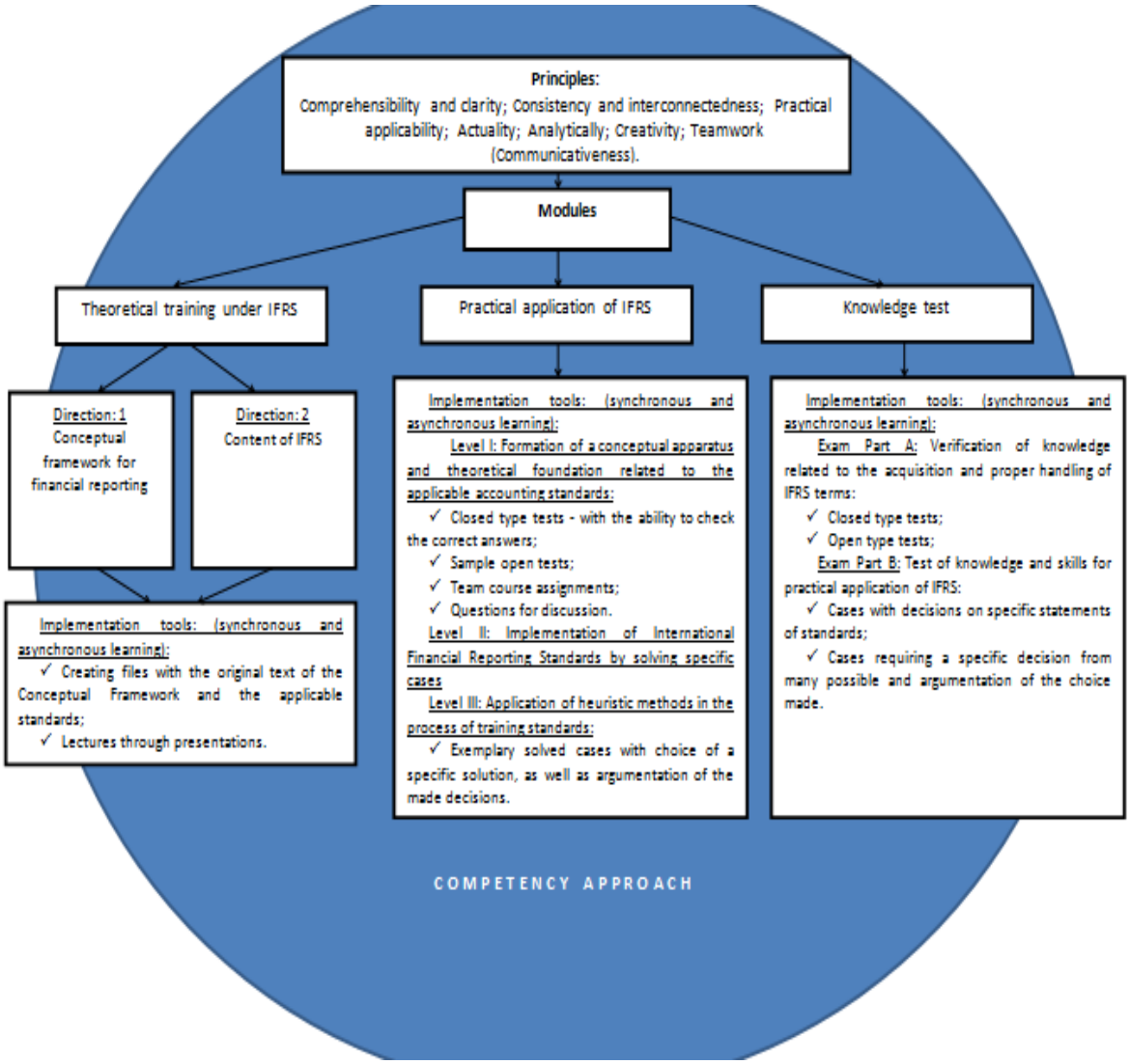

Figure 4: Principle-based model

4.4. Tools for digital training under IFRS®

For the purposes of digital training under IFRS®, it is necessary to create a course to be carried out in a specially created platform or in an existing one. The course created in the digital platform must allow the inclusion of learning activities and resources.

The functions of the course should offer a division of study modules (weeks, topics and/or others) in which to clearly distinguish the main from the additional activities and resources - learning resources from social resources, the compulsory and require assessment from those provided for self-

preparation and self-assessment. In the course it is necessary to create an opportunity for grouping the learning activities and/or resources in a way that allows for their easy management by the administrator, moderator and trainer. Each of the created activities and resources in the course aims to increase the knowledge, skills and competencies of the learners.

The digital training under IFRS® is carried out in two types of communication - synchronous and asynchronous. Both types of communication can be applied both in the traditional learning environment (classroom, classroom, etc.) and in the online environment[22]. In both types, different groups of teaching methods can be applied - verbal, practical and interactive methods. The quality of the online educational process depends on the effectiveness of the applied methods[23] Their correct selection, in the training under IFRS®, is the basis for achieving the desired results (knowledge, skills and competencies).

4.4.1 Synchronous learning[24]

Full synchronous learning is an event or set of events (learning) in which both the trainer and the learners participate. Synchronous learning is used in a digital environment when, for various reasons, participants in the learning process cannot implement in the traditional way. Thus, the conventional method of teaching in the classroom is transferred to a virtual environment (virtual classroom). Various video conferencing software applications such as Zoom, Teams, BigBlueButton, Google classroom and others can be used to create a virtual classroom. The main requirement in their selection is based on the question: *"What is the purpose of the virtual meeting?".* The software application must have a place (virtual board) where to draw diagrams, to contain functionalities for: audio and video; presentation of study material, case study or discussion questions; random selection of a learner to answer a question; granting rights to work in the application and others to support the management of IFRS® processes and training.

4.4.1.1. Verbal methods

Appropriate verbal methods that can be used for synchronous learning are conversations, discussions and debates. The three methods require trainers and trainees to be in the same place at the same time. **Conversation** is defined as a way of dialogue in which pre-asked questions are answered. The direction of action of the conversation is aimed at:

- development and acquisition of new knowledge for perception of the content of key definitions according to the specific accounting standards;
- repetition and consolidation of knowledge and skills on issues related to the scope of the applicable accounting standards;

[22] **Kearns, L.R.** *Student assessment in online learning: Challenges and effective practices*. MERLOT Journal of Online Learning and Teaching, 8(3), 2012. pp.198-208.

[23] **Tartavulea, C., Albu, C., Albu, N., Diaconescu, R., Petre, S.** *Online teaching practices and the effectiveness of the educational process in the wake of the Covid-19 pandemic.* Amfiteatru Ecnomic 22 (55). 2020. pp. 920-936

[24] **Huang, R.H.**, **Liu, D.J., Tlili, A., Yang, J.F., Wang, H.H.,** et al. *Handbook on Facilitating Flexible Lerning during Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak.* Beijing: Smart Learning Institute of Beijing Normal University. 2020

- systematization and generalisation of knowledge and skills for the assessment bases regulated by a specific accounting standard.

Discussion[25] is a verbal method that is suitable to support the IFRS® training process to achieve lasting knowledge about the problems related to the recognition of different types of assets and the direction of a solution for the presence of gaps that students believe are present in the applicable IFRS®. A key requirement in the discussion is to define a specific problem for a process carried out against the requirements of IFRS® (for example: advantages and disadvantages of the model for impairment of financial instruments based on expected losses). During the discussion, the learners were provoked by brainstorming (Brainstorming) and stimulated in search of additional information.

Debate *is* a discussion that, however, requires arguments for two different positions - for and against. This verbal method is suitable for developing argumentation skills and skills for defending opinion and position. With the help of presentation tools (PowerPoint) and data analysis tools (Excel), IFRS® learners can support the thesis they are defending. On topics such as those related to the effects arising from the occurrence of future events leading to the fulfilment of conditions for the recognition of provisions for legal or constructive obligations, debates are a useful tool for developing logical thinking and consistency in the presentation of concrete facts.

Working with textbooks literature is expressed in acquaintance with the basic concepts and theoretical statements that students must get used to and use in their presentations and with regulations and standards (national, European and international) that regulate the processes of financial reporting. The main information resource used as a tool is the **dictionary**. This resource allows learners to practice IFRS® terminology. Its other usefulness is related to the included explanations for each concept and / or process. This further contributes to their perception and interpretation by learners.

Presentations and **various software products**[26] for calculations and analysis are the **tools** that can be applied in the three verbal methods of digital learning under IFRS®. They are suitable for an explanatory-illustrative approach, in which mostly ready-made knowledge is obtained, but also for a reproductive approach, in which knowledge is formed on the basis of samples.

4.4.1.2. Practical methods

Practical methods support IFRS® training by contributing to learners' skills. Based on the characteristics of perceptions in Generation Z, practical methods are useful for attracting their attention and active participation in IFRS® training. Practical methods can be workshops, experiments, work with textbooks (dictionaries, laws, standards).

Workshops[27] are used to increase the practical skills and competencies of the learners. Numerous repetition of certain actions develops and improves skills and consolidates knowledge of the practical application of models for reporting initial valuation, subsequent valuation and impairment of assets.

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[25] **Brookfield, S**. *Discussion as an effective educational method.* New Directions for Adult and Continuing Education (26), 1985. pp. 55 – 67.

[26] **Warren, J., Rixner, S., Greiner, J. and Wong, S.** *Facilitating human interaction in an online programming course*. SIGCSE 2014 - Proceedings of the 45th ACM Technical Symposium on Computer Science Education. Atlanta Georgia USA, March 2014. New York: Association for Computing Machinery. 2014

[27] **Robles, M., Braathen, S.** *Online assessment techniques*. The Delta Pi Epsilon Journal, 44(1), 2002. pp.39-49.

Experimental method[28] is used when in the process of trained in IFRS® it is not possible to apply interactive methods. The main application is in order to consider the nature of processes such as testing for impairment of assets and to reveal and indicate their patterns. Secondly, it can be used to study the status of processes related to the alternative of ex-post valuation methods, which are regulated in some of the applicable accounting standards (for example: the acquisition cost model and the revaluation model for ex-post valuation of machinery and equipment). Equipment in accordance with IAS 16 Property, Plant and Equipment) and their impact properties.

The acquaintance with the normative interpretations and requirements, by **placing links to sites** or **attached webpages**, in the already created course, give an opportunity for easy access of the trainees to the existing standards. They are suitable for the practical classes of the students. Easy access to information resources allows the development of skills such as searching, selecting and summarizing information for optimal time.

4.4.1.3. Interactive methods[29]

Interactive methods adapt the information into a resource that is usable, which develops in a dynamic environment, adapted in real time. Interactive methods suitable for IFRS® training are simulations and role-plays.

Simulations[30] are an interactive method in which the learner is presented with a situation that is close to the real one. The training under IFRS® allows, through the creation of simulation companies, the trainees to participate in the actual preparation of financial statements. This allows to realize basic skills and knowledge by choosing a specific way of acquiring assets (traditional purchase, leasing, exchange, etc.), using a specific method of depreciation. The starting point for the respective choice is the financial stability of the reporting enterprise.

Role-playing games[31] are a type of simulation requiring IFRS® learners to mimic a particular role in a particular financial reporting process. This method allows to develop principles such as analyticalness, synthesis, independence (individuality) and efficiency, dynamism, skills for process modelling and teamwork. Role-playing games in IFRS® training allow the play of an activity in which the students present the mastered learning material.

Accounting software products are the main tools that can be applied in IFRS® training. This allows students to get acquainted with the functions of accounting products used by companies and to apply the acquired skills and competencies. Interactive whiteboards and projections (multimedia) are also tools for applying interactive methods. Through them, the content of the learning process can be integrated and adapted in real time. The tools used in the simulations and role-plays allow the effective interaction between trainers and trainees, which leads to increased motivation of both parties in the IFRS® training process.

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[28] **Barrett, J., Hornbeck, R.** *Experimental Method*. The International Encyclopedia of Anthropology. 2018

[29] **Johnson, S.D. and Aragon, S.R.** An instructional strategy framework for online learning environments. New Directions for Adult and Continuing Education, 100, 2003. pp.31-43

[30] **Englund, C., Olofsson, A.D. and Price, L**. *Teaching with technology in higher education: understanding conceptual change and development in practice*. Higher Education Research & Development, 36(1), 2017. pp.73-87.

[31] **Knowles, I., Castranova, E.** *Economics and Role-Playing Games*. Role-Playing Game Studies (1st Edition). Routledge. 2018. pp. 280-294.

4.4.2 Asynchronous learning

Asynchronous learning is for IFRS® students to independently perform assignments set by the trainer without being simultaneously in the virtual environment. Solving the assignment under IFRS® and returning the results by the students is a product that will be evaluated later. The control applied by the trainer is remote and assessment is through a specially created path in the electronic platform. All of these actions are performed in a delayed connection and it is not necessary to perform the actions simultaneously.

Methods for asynchronous learning under IFRS® can be **case studies** and **project development**. Both methods, due to the wide range of application and labour intensity in achieving the desired results require a long time. For these main reasons, both methods are included as methods in which learners independently search, analyse, select and summarise the collected information.

Case studies[32] are an appropriate method when students are required to achieve and prove the most facts, and not just answers to the tasks and problems to be solved. The case study method is suitable for both individual studies and group research. This is how the quality of thinking develops - selection of situations, situation analysis, orientation and reasoning skills.

Project development is a method for creating a product or result in which more learners participate, divided into teams or groups. Project development allows participants to acquire both teamwork skills and individual skills to perform specific project tasks. Due to the nature of the project as an activity, its development goes through different stages and requires different in nature skills - theoretical knowledge, mathematical calculations, analytical thinking, which contributes to building a combination of skills.

The tools in both methods can be based on files uploaded to the digital platform in the form of emails, chat lists, discussion forums / boards, blogs, messages, shared documents, virtual board, video tutorials and instant messages[33]. These files should contain instructions and explanations to form the boundaries of the framework in which the actions of IFRS® learners will be extended.

Another resource that can be used as a tool for implementing case studies and projects is a **"Lesson" type** resource. This resource should provide an opportunity for consistency in the actions of IFRS® learners. It is possible to limit the transition to the next level of response if the learners do not respond to the previous one.

The use of the described methods and tools must find real application in the training under IFRS®. They must be a prerequisite for the relationship between the elements of the principle-based model and the competence model. At the same time to meet the requirements of the Conceptual Framework for Financial Reporting regarding the set of knowledge, skills and competencies.

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[32] **Gwee, J.** *The case method. In: The Case Writer's Toolkit. Palgrave Macmillan, Singapore. 2018. Pp 199-211.*

[33] **Craig, A., Coldwell-Neilson, J., Goold, A. and Beekhuyzen, J.** *A review of e-learning technologies. Opportunities for Teaching and Learning.* In: CSEDU 2012, Proceedings of the 4-th International Conference on Computer Supported Education. Porto, Portugal, 2012: INSTICC.

4.5. Applied aspects of the principle-based model of teaching and learning

In order to present the relation between the elements of the principle-based educational model under IFRS® and the competence model, a characteristic of competence and competencies should be made. Competence can generally be defined as "the demonstrated ability of an employee to perform the required job perfectly and to achieve the required results in work or study situations." [34] The application of these abilities according to the respective situation is called competencies. The basis of the formation of competencies in the individual employee are the acquired knowledge and skills in the training process. David McClelland notes that the knowledge formed represents a certain level of intelligence, but their ability to use and apply it forms the competencies. [35] The model of competencies can be defined as a set of competencies (behaviours) that are necessary for the excellent performance of the respective position. [36] The competency model can be formed for a specific economic sector or for a specific organisation. This model expresses the set of requirements of the respective sector or organisation for how the employees of the given position to perform their activities at a high level.

The formation of knowledge and skills during the training in practice is done with the help of the elements and means of the respective educational model. When developing the model, a study should be made of the companies and the respective economic sectors on what competencies are required of them and the respective positions related to the application of IFRS®. The aim is to achieve a compliance between the nature of the subject taught and the formation of the necessary competencies.

4.5.1. Dimensions of the competence approach

The dynamics of the development of modern society brings to the fore the growing need for socially and technologically educated individuals who are able to construct their personal and professional behaviour and make decisions for the benefit of society. All this requires a change of attitudes from subject-oriented to competency-oriented teaching and learning, moving from the static concept of "learning content" and encyclopaedic knowledge to the dynamic perception of competencies as a set of knowledge, skills and attitudes that develop at university and enrich throughout life. The aim is to build in the young person skills that will serve him for full personal, social and professional realization.

The competence approach in accounting training (including IFRS®) helps to:

- Protect the public - this task, which the competence model should fulfil, is primarily related to the financial stability of the society. The decisions and abilities of the persons applying the accounting standards regarding the analysis, interpretation and presentation of the information in the financial statements of the companies (especially those of public interest) are the basis for making important decisions by a wide range of users of this information. regulatory authorities, etc.). The reliability and reliability of the information in the financial statements is a prerequisite for making timely and informed decisions, which is a prerequisite

[34] **Boyadzhieva, Tanya.** *Unikalen shans za balgarskiya biznes – izgrazhdane na Natsionalna referentna mrezha za otsenyavane na kompetentsiite na rabotnata sila po branshove I regioni* - **http://www.competencemap.bg**

[35] **McClelland, David C.** *Testing for Competence Rather Than for "Intelligence"* - https://www.therapiebreve.be/documents/mcclelland-1973.pdf

[36] **Boyadzhieva, Tanya.** *Unikalen shans za balgarskiya biznes – izgrazhdane na Natsionalna referentna mrezha za otsenyavane na kompetentsiite na rabotnata sila po branshove I regioni* - **http://www.competencemap.bg**

for the financial stability not only of specific enterprises and industries, but also of economies in national and international aspects=

- Protect the reputation of the profession and maintain public trust – the dynamics of the matter of the applicable accounting standards challenges the educational process to be adequate to the changes and requirements of the business. The established reputation of the accounting profession as a result of its socio-economic significance requires the development of an educational model that forms a wide range of competencies, in accordance with ever-changing requirements. Otherwise, the accounting profession is at risk of erosion and public distrust.
- Comply with national standards and regulations - although IFRS® are internationally established rules, they are applied in a number of companies with national capital, due to the scale and public interest of their activities. This requires that the provisions of national law be observed when applying IFRS®.
- Meet international requirements and expectations - during the processes of globalisation and capital consolidation, many companies have acquired an international character. This requires that the preparation of the consolidated financial statements take into account not only the legal provisions of individual countries, but also the rules of the countries where the parent company or subsidiaries are located.[37]

The change of focus in training from teaching knowledge to mastering key competencies and solving problem-solving skills brings to the fore the main features of the competency approach[38]:

- **integrated interdisciplinary interaction -** The whole educational process is related with separate global topics and concepts, which, in order to be understood, must be taught interconnectedly. Emphasizing the integrity of the studied means using different interdisciplinary relations in clarifying terms, processes and occurrences. Interdisciplinary training facilitates the formation of individual key competencies and ultimately leads to their integrated acquisition. And this contributes to the multi-layered thinking and formation of integrative qualities of the personality, which mobilize its personal potential;
- **practical orientation of the training** - in the competence approach, education is associated with the ability on the basis of the acquired knowledge to demonstrate skills to solve problems of varying complexity and in unknown everyday situations. This requires providing a real practical context for learning purposes and developing learning tasks in a way that stimulates critical thinking, teamwork, creativity, entrepreneurship, emotional intelligence, decision making - skills that are becoming essential in the 21st century. When students see the practical significance of each acquired competence, it motivates them to participate, creates confidence in them to cope, provokes them to seek positive solutions;
- **results orientation** - The competency approach focuses on the result, but the result not as a sum of learned information, but as a set of skills for action in various non-standard situations;
- **application of innovative approaches and practices in the process of teaching and learning** - The competency approach is based on interactive methods and new learning technologies that contribute to the form of independence, initiative, creativity, critical thinking in students and guide them to the specific effective result. This approach emphasizes the variety of forms of assessment and the ways of forming adequate and positive self-assessment. The use of innovations in the teaching and learning process, including technological ones, contributes

[37] **Borgonovo, Alfred , Friedrich, Brian, and Michael Wells.** *Competency-Based Accounting Education, Training, and Certification. An Implementation Guide.WORLD BANK GROUP.2019. Retrieved [14.12.2021] from* https://openknowledge.worldbank.org/

[38] *Za prehoda ot znaniya kam umeniya Retrieved [18.12.2021] from* https://www.mon.bg/upload/II-book

greatly to increasing the motivation for active work. Creative and innovative approaches require the development of learning tasks in a way that stimulates critical thinking skills, teamwork, creativity, entrepreneurship, social and emotional intelligence and decision making.

The changed goals also lead to a change in the determination of learning content, in the selection of activities and in the approaches to assessment:

Table No. 1. Evolution of objectives, learning content and assessment approaches in the teaching process

	Traditional practices and approaches	**The competency approach**	**The new role of the trainer**
Educational goals	Aimed at mastering certain learning content	Practically oriented, they develop the personality and the ability to make a direct relation with the activities	Plans individually or in a team the activities through which the educational goals acquire a practical orientation.
The learning content	Focused on subject structuring of knowledge	The learning content planned for study is completely subordinated to the acquisition of skills by the student and their application in practice.	Uses interdisciplinary relations and interdisciplinary approaches, selecting activities for applying knowledge in practice.
Learning activities	Related to the acquisition of knowledge and reproduction of basic concepts, facts, laws, rules, principles, etc.	The learning activities lead to independent solving of learning problems on the basis of the acquired knowledge, incl. through research, projects, papers, etc.	It manages the learning process not so much by informing, but by consulting the students and facilitating the activities.
The evaluation	Aimed at the set learning content, most often the methods are statistical	The process, the degree of participation and the achieved expected results are evaluated, and the evaluation is complex.	It takes into account the achievements, argues the complex assessment and plans supporting measures
The results	A set of knowledge acquired for the purposes of a specific test or examination	Willingness to solve problems of varying complexity using knowledge.	Forms assurance in students to use acquired knowledge to solve problems of varying complexity.

The role of the trainer is expressed in:

- changing the focus from teaching to active learning;
- orientation the content of education towards mastering key competencies and developing problem-solving skills;
- encouraging the motivation to learn in their students;
- purposeful application of information technologies to support training;
- mediator of the information flow.

To realise this new role, the modern trainer has considerable freedom - to organise the learning environment, to plan learning activities, to select methods, approaches and educational resources, to enrich the educational process with situations close to the real ones. This enables him to create a "developmental environment" compliant to the specifics of specific students, dynamic and changing according to their level of ability, to include as much as possible modern teaching aids, to apply innovative practices to make their lesson creative, so that the main result of the training is not the knowledge received by the student, but the experience gained from systematic activities.

Purposefully application of technology can support learning without automating it, using programs and applications that support student research and provide opportunities for creative activities, if digital methods of collaboration and communication are offered within and outside the university.

4.5.2. Acquired skills and competencies

The application of the proposed principle-based model of IFRS® training, based on competencies, leads to the formation of the following knowledge, skills and professional competencies in students:

The training provides students with:

- a wide range of theoretical and practical **knowledge of IFRS®** - (the conceptual basis of financial reporting, theoretical statements, approaches, concepts, and methods related to specific IAS / IFRS®);
- the ability to critically learn and express various theories, concepts and patterns necessary for the development and implementation of original ideas and solutions in practice.

In the process of training students acquire basic **skills** for:

- applying the accounting rules relating to the initial measurement and initial recognition of assets and liabilities, income and expenses, subsequent valuation, derecognition, presentation and disclosure in the financial statements, etc.;
- comparison of the recommended and admissible alternative approaches in the accounting treatment of similar transactions and events;
- interpretation and application of IAS / IFRS® in accounting for the activities of enterprises and the preparation of their financial statements;
- use of practical and cognitive approaches and strategies for understanding and diagnosing abstract problems in the professional field in situations characterised by uncertainty;
- application of modern research, integration of knowledge from interdisciplinary fields and generation of new knowledge in order to solve specific problems arising in the professional field.

The training forms in the students the following main **competencies:**

- independence and responsibility - initiating processes of change, policy formulation, organisation of activities and manifestation of leadership qualities in the management of teams for their implementation;
- learning skills - identification of the need to update and / or expand the professional qualification, ability to independently train and acquire new knowledge and skills in the field of accounting standards; application of abstract thinking and various methods and approaches for creative acquisition of new knowledge;

- communication and social competencies - argumentation and presentation of ideas, problems and solutions (regarding the development of the respective professional field) to a specialized and non-specialized audience;
- professional competencies - ability to apply IAS / IFRS® in their professional activity; ability to work with information, to discover, evaluate and use information from different sources to solve various professional and scientific tasks; processing of specialized financial and non-financial data and interpretation of the created information in order to solve complex problems in the professional field; ability for adequate professional judgments and interaction; commitment to important scientific, social and moral problems arising in the profession and society as a whole.

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ANNEX 1

QUESTIONNAIRE 1: Perceptions of students in HEIs towards IFRS® and digital learning

Demographics and background of respondents

Q1. Gender

1=Male
2=Female
3=Other

Q2. Residence (Nationality)

1=Turkey
2=North Macedonia
3=Romania
4=Bulgaria
5=Lithuania
6=Other

Q3. Studying level

1=Undergraduate (Bachelor student)
2=Postgraduate (Master student)
3=Postgraduate (PhD student)
4=Other

Q4. Did you take any courses covering IFRS®?

0=None
1
2
3
More than 3 (please specify) ____

Q5. How many courses have you passed covering IFRS®?

0=None
1
2
3
More than 3 (please specify) ____

Q6. How many courses have you failed covering IFRS®?

0=None
1
2

3
More than 3 (please specify) ____

Q7. Degree of knowledge of IFRS®

1=No knowledge at all
2=Some knowledge
3= Reasonably knowledgeable
4=Very knowledgeable
5=Expert

Q8. Practical experience of IFRS®

1=No practical experience at all
2=Some practical experience
3=Reasonably experienced
4=Very experienced
5=Expert

Q9. Type of higher education institution

1=Public
2=Private
3=Other academic institutions

Q10. Language of instruction

1=English
2=Other (please specify) _____

Q11. Please, express your opinion about incorporating IFRS® into accounting curricula

Q11.1. Are you interested in learning IFRS®?
1=Yes
2=No

Q11.2. Should IFRS® be incorporated in curricula?
1=Yes
2=No

Q11.3. Does your curriculum include a course on IFRS®?
1=Yes
2=No

Q11.4. If curriculum includes a course on IFRS®, is this course mandatory for graduation (not elective or optional)?
1=Yes
2=No

Q11.5. Is the term IFRS® mentioned in the textbooks that you study from at the university?
1=Yes

2=No

Q11.6. Are the textbooks for the accounting courses from which you learned at the university recent (2017 and beyond)?
1=Yes
2=No

Q11.7. Is the conceptual framework of the financial reporting according to IFRS® taught in the course of principles of accounting?
1=Yes
2=No

Q11.8. Do your professors mention IFRS® when dealing with accounting topics that are taught in accounting courses?
1=Yes
2=No

Q12. Do you think IFRS® learning is important?

1=Not at all important
2=Somewhat important
3=Important
4=Very important
5=Extremely important

Q13. What is the academic level at which IFRS® should be covered?

1=Undergraduate (Bachelor's degree) only
2=Postgraduate (Master's and PhD degree) only
3=Both undergraduate and postgraduate

Q14. How useful are the IFRS® learning tools/materials?

Textbooks		1	2	3	4	5
Case studies		1	2	3	4	5
PowerPoint presentations		1	2	3	4	5
Videos	1	2	3	4	5	
Webcasts		1	2	3	4	5
Smart boards		1	2	3	4	5
Specific software		1	2	3	4	5

1= Not at all useful; 2 = Somewhat useful 3 = Useful 4 = Very useful to 5 = Extremely useful

Q15. Please express your opinion about the following challenges in learning IFRS®

Lack of well-recognized learning materials	1	2	3	4	5
Limited learning hours	1	2	3	4	5
No sufficient training opportunities for the students	1	2	3	4	5
Few examples/exercises illustrating differences between National Standards and IFRS®	1	2	3	4	5

1=Not at all concerned; 2=Slightly concerned; 3=Somewhat concerned; 4=Moderately concerned; 5=A major concern (extremely concerned)

Q16. How do you keep up with IFRS® changes?

Materials from internet	1	2	3	4	5
IFRS related books	1	2	3	4	5
Domestic conferences	1	2	3	4	5
Online learning courses	1	2	3	4	5
International conferences	1	2	3	4	5

1=not at all useful; 2=Slightly useful; 3=Somewhat useful; 4=Moderately useful; 5=a major information source (extremely useful)

Measuring the digital learning perceptions of GenZ students

Q17. Performance expectancy

Q17.1. Digital learning would help me comprehend the course content better.
1 2 3 4 5

Q17.2. Digital learning will enhance my teamwork with my classmates on group work.
1 2 3 4 5

Q17.3. I think digital learning will facilitate my career development.
1 2 3 4 5

1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

Q18. Effort expectancy

Q18.1. I would say using digital learning is simple. 1 2 3 4 5

Q18. 2. I am eager to make use of a digital learning application if I get some help on how to use it. 1 2 3 4 5

1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

Q19. Social influence

Q19.1. My friends will motivate me to use digital learning.1 2 3 4 5

Q19.2. Individuals whom I regard as important would support me to use digital learning.
1 2 3 4 5

Q19.3. The importance of digital learning is emphasized from the academicians at my university. 1 2 3 4 5

1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

Q20. Intention to use digital learning

Q20.1. I plan to make use of digital learning technologies for my studies.
1 2 3 4 5

Q20.2. I believe that I will improve myself more in digital learning applications.
1 2 3 4 5

Q20.3. I prefer to use digital learning over other learning schemes.
1 2 3 4 5
Q20.4. Digital learning requires learning very complex programs.
1 2 3 4 5
1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

Q21. Learners' creativity

Q21.1. I am enthusiastic to complete my tests and assignments using Digital learning applications. 1 2 3 4 5
Q21.2. I am eager to use new digital applications. 1 2 3 4 5
Q21.3. I would take pleasure in using my portable devices for digital learning application.
1 2 3 4 5
Q21.4. I am willing to use digital applications to obtain course materials.
1 2 3 4 5
Q21.5. I am willing to work together with my classmates.
1 2 3 4 5
1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

Q22. Learners' mobility

Q22.1. I can continue studying my courses anywhere and anytime.
1 2 3 4 5
Q22.2. Digital learning will make me use my time effectively for learning.
1 2 3 4 5
Q22.3. With digital learning, the ability to listen to the courses over and over makes it easier to understand the topics. 1 2 3 4 5

1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

ANNEX 2

QUESTIONNAIRE 2: Perceptions of academicians in HEIs towards IFRS® and digital learning

Demographics and background of respondents

Q1. Gender

1=Male
2=Female
3=Other

Q2. Residence (Nationality)

1=Turkey
2=North Macedonia
3=Romania
4=Bulgaria
5=Lithuania
6=Other

Q3. Academic Position

1=Professor
2=Associate Professor
3=Lecturer
4=Assistant Professor
5=Other

Q4. Years of experience teaching accounting courses in higher education

1=Less than 5 years
2=6-10 years
3=11-15 years
4=16-20 years
5=More than 20 years

Q5. Degree of knowledge of IFRS®

1=No knowledge at all
2=Some knowledge
3=Reasonably knowledgeable
4=Very knowledgeable
5=Expert

Q6. Practical experience of IFRS®

1=No practical experience at all
2=Some practical experience
3=Reasonably experienced

4=Very experienced
5=Expert

Q7. Type of higher education institution

1=Public
2=Private
3=Other academic institutions

Q8. Language of instruction

1=English
2=Other (please specify) _____

Q9. How important is the teaching of IFRS® in general?

1=Not at all important
2=Somewhat important
3=Important
4=Very important
5=Extremely important

Q10. What is the academic level at which IFRS® should be covered?

1=Undergraduate (Bachelor's degree) only
2=Postgraduate (Master's and PhD degree) only
3=Both undergraduate and postgraduate

Q11. What kind of steps have been taken by your institution to incorporate IFRS® in curriculum?

0=No significant steps yet taken
1=Actively assessing future course of action
2=Integrated significant components of IFRS® into existing course/s
3=Created a separate undergraduate course
4=Created a separate graduate course
5=Created both undergraduate and graduate courses

Q12. How useful is each of the following pedagogical approaches for IFRS® learning?

Use of case studies to develop students' analytical, evaluation and judgement skills 1 2 3 4 5
Guest speakers (IFRS® experts) who provide a real-life learning experience for students 1 2 3 4 5
Cooperative-based learning approach (short-term industry work placement prior to course completion) 1 2 3 4 5
Simulations (real-life business problems) 1 2 3 4 5
Research projects related to emerging IFRS® topics and issues 1 2 3 4 5
Start by teaching theory and rationale of IFRS® before teaching the new standards 1 2 3 4 5
Oral presentations related to emerging IFRS® topics and issues 1 2 3 4 5

Role playing to enhance students' communication and interpersonal skills and stimulate their creativity	1	2	3	4	5
Other (please specify) _____	1	2	3	4	5

1= Not at all useful; 2 = Somewhat useful 3 = Useful 4 = Very useful to 5 = Extremely useful

Q13. How difficult is each of the following challenges for teaching IFRS®?					
Language barriers	1	2	3	4	5
Developing curriculum materials for IFRS®	1	2	3	4	5
Insufficiency of practices in IFRS® training	1	2	3	4	5
Faculty expertise in IFRS®	1	2	3	4	5
Timing of when to begin teaching students IFRS®	1	2	3	4	5
Large class sizes	1	2	3	4	5
Getting faculty cooperation to teach IFRS®	1	2	3	4	5
Availability of financial resources (budgetary constraints)	1	2	3	4	5
Making room in the curriculum for IFRS®	1	2	3	4	5

1= Not a challenge at all; 2=Slightly a challenge; 3=Somehow a challenge; 4=Moderately a challenge; 5=A major challenge.

Q14. How useful are the IFRS® learning tools/materials?					
Textbooks	1	2	3	4	5
Case studies	1	2	3	4	5
PowerPoint presentations	1	2	3	4	5
Videos	1	2	3	4	5
Webcasts	1	2	3	4	5
Smart boards	1	2	3	4	5
Specific software	1	2	3	4	5

1= Not at all useful; 2 = Somewhat useful 3 = Useful 4 = Very useful to 5 = Extremely useful

Q15. Please express your opinion on language and translation issues					
I believe in consulting the English original version of IFRS® despite the availability of a translation	1	2	3	4	5
An equivalent translation of IFRS® to any other language is not possible	1	2	3	4	5
Availability of consistent high-quality translations of IFRS® teaching materials in a local language is unachievable in the next five years	1	2	3	4	5
IFRS® should only be taught and delivered in English	1	2	3	4	5

1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

Q16. Please express your opinion about the following challenges in teaching IFRS®					
Lack of well-recognized teaching materials	1	2	3	4	5
Limited teaching hours	1	2	3	4	5

Confusion among students 1 2 3 4 5
No sufficient training opportunities for the faculty 1 2 3 4 5
Few examples/exercises illustrating differences between National standards and IFRS®
1 2 3 4 5

1=Not at all concerned; 2=Slightly concerned; 3=Somewhat concerned; 4=Moderately concerned; 5=A major concern (extremely concerned)

Q17. How do you keep up with IFRS® changes?

Materials from Internet 1 2 3 4 5
IFRS® related books 1 2 3 4 5
Domestic conferences 1 2 3 4 5
Online learning courses 1 2 3 4 5
International conferences 1 2 3 4 5

1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

Q18. What are the challenges of using digital teaching in IFRS® education?

Q18.1 IFRS is complex and therefore too difficult to enforce with digital teaching methods
1 2 3 4 5
Q18.2 Implementation costs are too high 1 2 3 4 5
Q18.3 Lack of adequate technical resources makes enforcements difficult
1 2 3 4 5
Q18.4 Absence of involvement of regulatory bodies makes enforcement difficult
1 2 3 4 5

1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

Q19. Digital teaching perceptions of academics

Q19.1. digital teaching is simple. 1 2 3 4 5
Q19.2. I am eager to make use of a digital application if I get some help on how to use it.
1 2 3 4 5
Q19.3. Revising my course materials will be easier with digital tools
1 2 3 4 5
Q19.4. My colleagues will motivate me to use digital teaching 1 2 3 4 5
Q19.5. I possess adequate skills to use digital applications. 1 2 3 4 5
Q19.6. Digital teaching will make me use my time effectively for teaching.
1 2 3 4 5

1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree

Q20. Challenges in the digital teaching

Q20.1. A large amount of work associated with designing and updating digital course materials
1 2 3 4 5

Q20.2. The necessity to overcome technical problems during course preparation and course delivery 1 2 3 4 5

Q20.3. A sense of excessive mechanization of the learning process (limited opportunity to establish closer, personal relationship with students) 1 2 3 4 5

Q20.4. The necessity of solving technical problems reported by students 1 2 3 4 5

Q20.5. The necessity to dedicate time to conduct online activities with students (e.g. participation in discussions, answering questions via e-mail, managing e-forums, e-consultations) 1 2 3 4 5

1=Disagree, 2=Somewhat disagree, 3=Neither agree nor disagree, 4=somewhat agree, 5=Agree