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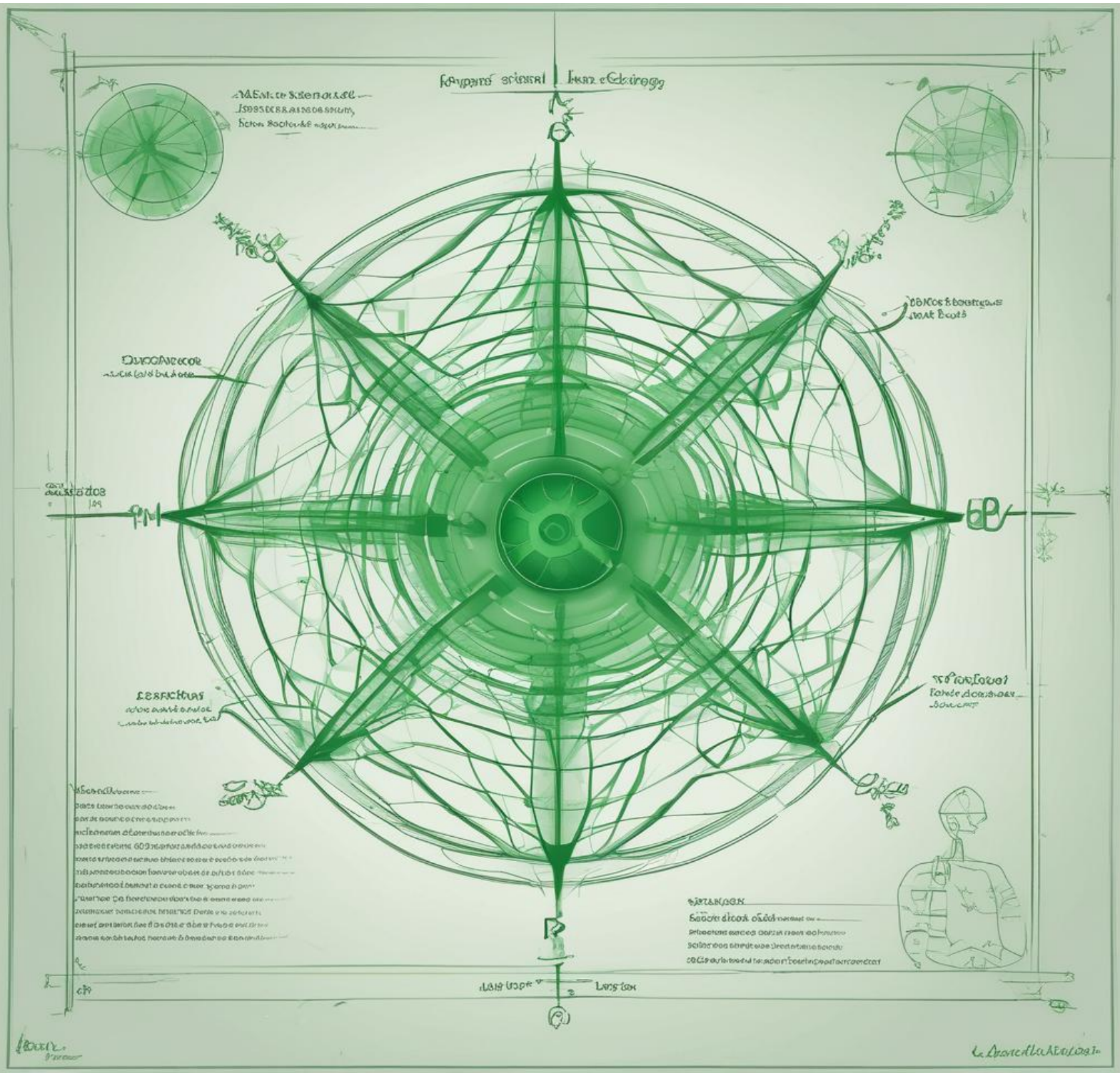
SCIENCE AND PROCESSES OF EDUCATION



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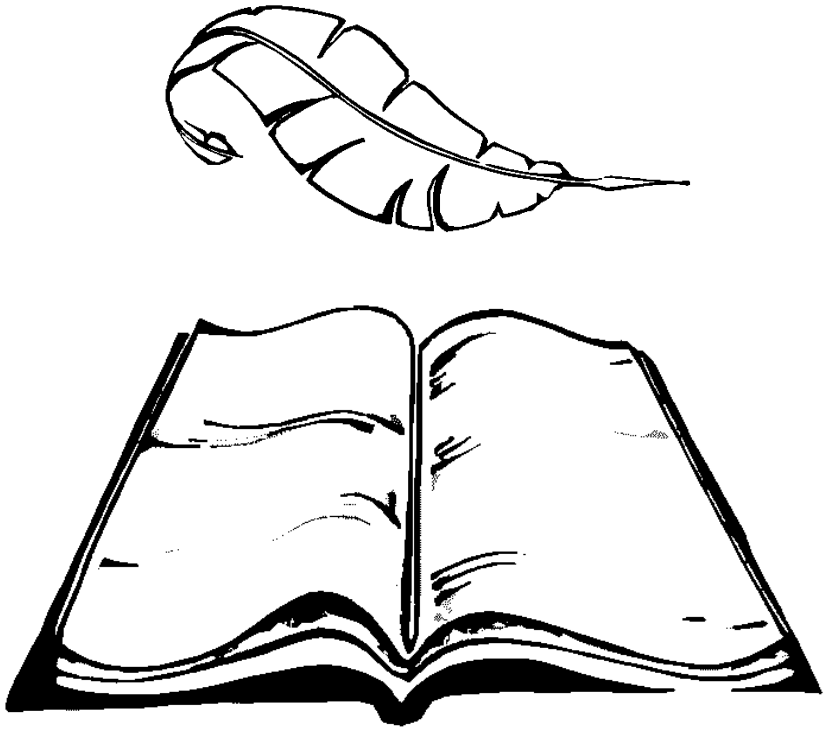

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Z KARTOS STUDENTŲ MOKYMOSI MOTYVACIJOS AUKŠTOJOJE MOKYKLOJE UŽTIKRINIMO GALIMYBĖS

POSSIBILITIES OF ENSURING THE LEARNING MOTIVATION OF GENERATION Z STUDENTS IN HIGHER EDUCATION

KRISTINA SAMAŠONOK
Vilniaus kolegija, Lietuva

Annotation

The article presents an assessment of the possibilities of ensuring the learning motivation of Generation Z students in higher education, considering the essential characteristics of this generation, in the context of scientific literature. *The aim of the research:* to study the factors determining the learning motivation of Generation Z students in higher education and to predict the possibilities of ensuring it. Analytical descriptive, quantitative and statistical research methods were applied. Using the quantitative research strategy, the attitude of Generation Z students (n=309) towards studies was clarified, the factors determining the learning motivation of Generation Z students were identified and based on the assessments of the research participants, possible ways of increasing the learning motivation of Generation Z students were predicted. The results of the research showed that even though more than two-thirds (70.2%) of Generation Z students rated their learning motivation in higher education with sufficiently high and highest scores (from 6 to 10 points), almost a third (29.8%) of the respondents had a low level of learning motivation, rated from 1 to 5 points. As the results of the research showed, competent and inspiring lecturers and good relationships between lecturers and students based on cooperation, as well as a flexible lecture attendance schedule, as well as academic achievements and good study results were identified as some of the factors determining the learning motivation of Generation Z students. According to the research participants, the application of information technologies in the study process, attractive and interesting lectures organized using modern teaching and learning methods, as well as study content that meets the needs of the modern labour market and communication between students and teachers based on cooperation are some of the possible ways to increase the learning motivation of Generation Z students. On the other hand, the possibilities of ensuring the learning motivation of Generation Z students are associated with organized lectures by invited guests, clearly provided instructions and deadlines for completing tasks, and more flexible organization of reports. The results of the research will have lasting value in the scientific discussion by predicting possible ways to increase the learning motivation of Generation Z students, considering the essential characteristics of this generation.

Key words: generation Z students, factors determining learning motivation, ways to increase learning motivation, higher education studies, organization of the study process

Anotacija

Straipsnyje pateikiamas Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo galimybių, atsižvelgiant į esmines šios kartos charakteristikas, įvertinimas mokslinės literatūros kontekste. *Tyrimo tikslas*: ištirti Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje lemiančius veiksnius bei numatyti jos užtikrinimo galimybes. Taikyti *analitinis aprašomasis, kiekybinis ir statistinis tyrimo metodai*. Naudojant kiekybinio tyrimo strategiją, išsiaiškintas Z kartos studentų (n=309) požiūris į studijas, nustatyti Z kartos studentų mokymosi motyvaciją lemiantys veiksniai bei, remiantis tyrimo dalyvių vertinimais, numatyti galimi Z kartos studentų mokymosi motyvacijos užtikrinimo būdai. Tyrimo rezultatai parodė, kad nepaisant to, jog daugiau nei du trečdaliai (70.2 proc.) Z kartos studentų savo mokymosi motyvaciją aukštojoje mokykloje įvertino pakankamai aukštais ir aukščiausiais įverčiais (nuo 6 iki 10 balų), vis dėlto beveik trečdalis (29.8 proc.) tiriamųjų pasižymi žemu mokymosi motyvacijos, įvertintos nuo 1 iki 5 balų, lygiu. Kaip parodė tyrimo rezultatai, kompetentingi bei įkvepiantys dėstytojai bei geri dėstytojų ir studentų tarpusavio santykiai, grįsti bendradarbiavimu, o taip pat lankstus paskaitų lankymo tvarkaraštis bei pasiekimai moksle ir geri studijų rezultatai įvardinti kaip Z kartos studentų mokymosi motyvaciją lemiantys veiksniai. Tyrimo dalyvių vertinimu, informacinių technologijų taikymas studijų procese, patraukliai ir įdomiai organizuojamos paskaitos naudojant šiuolaikinius mokymo ir mokymosi metodus, o taip pat studijų turinys, atitinkantis šiuolaikinės darbo rinkos poreikius bei bendradarbiavimu grįstas studentų ir dėstytojų komunikavimas yra

vieni iš galimų Z kartos studentų mokymosi motyvacijos užtikrinimo būdų. Kita vertus, Z kartos studentų mokymosi motyvacijos užtikrinimo galimybės siejamos su organizuojamomis kviestinių svečių paskaitomis, aiškiai pateiktais nurodymais ir terminais užduotims atlikti ir lankstesniu atsiskaitymų organizavimu. Tyrimo rezultatai turės išliekamąją vertę mokslo diskusijoje numatant galimus Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo būdus, atsižvelgiant į esmines šios kartos charakteristikas.

Raktiniai žodžiai: Z kartos studentai, mokymosi motyvaciją lemiantys veiksniai, mokymosi motyvacijos užtikrinimo galimybės, aukštojo mokslo studijos, studijų proceso organizavimas

ĮVADAS

Tyrimo aktualumas ir problema. Aukštojo mokslo siekimas tampa būtina kiekvieno asmens kvalifikacijos įgijimo bei išsaugojimo sąlyga ir yra suvokiamas kaip priemonė, padedanti ruošiantis profesinei veiklai plėsti žinias, tobulinti gebėjimus ir ugdyti savo asmenybę. Šiandien studijuoja naujoji Z karta, apibūdinama kaip technologijų ir skaitmeninė karta, virtualios aplinkos vaikai, skaitmeninės kartos čiabuviai (Targamadzė, 2014), gimę po 1995 metų ir siejama su interneto atsiradimu bei sparčiu informacinių ir komunikacinių technologijų vystymusi (Pečiuliauskienė, Valantinaitė, Malonaitienė, 2013). Mokslininkų teigimu, nuo ankstesnių (X ir Y) kartų skiriasi ne tik naujosios Z kartos asmenybės savybės, bet ir tokios charakteristikos, kaip požiūriai, vertybės, interesai, turimi ištekliai, galimybės, gebėjimai ir kt. (Pierson, Mante-Meijer, Loos, 2011). Tad akivaizdu, jog šiame kontekste kiekvienai švietimo įstaigai (taip pat ir aukštajai mokyklai) išryškėja kaitos būtinybė ir aktualumas, nes senasis ugdymo modelis nebetinka. Apibendrinant tai, kas pasakyta, matyti, kad modeliuojant Z kartos ugdymo(si) perspektyvą, būtina ne tik įvertinti šiai kartai būdingas charakteristikas ir išryškinti jos esminius bruožus, bet aukštajai mokyklai tenka uždavinys, o tuo pačiu ir iššūkis, Z kartą ruošiant profesinei veiklai, pereiti prie asmeninio mokymo ir pažangos stebėjimo, atliepti studijuojančiųjų reikmes, taikyti efektyvius būdus ir metodus, atitinkančius individualius mokymosi stilius bei nuolat analizuoti, kas didintų pastarųjų mokymosi motyvaciją ir aktyvų įsitraukimą į studijų procesą.

Nors Z kartos įvairiais aspektais problematikos analizė nėra naujas reiškinys, o vertinant švietimo sistemos tobulinimo tendencijas, šioje srityje akivaizdi kaita teigiama linkme: dėmesys skiriamas Z kartos esminių ypatumų raiškos identifikavimui ir analizei, nuolat atliekami tyrimai Z kartos ugdymo tema, švietimo įstaigos ieško būdų sprendžiant Z kartos ugdymo kokybės užtikrinimo klausimus, vis dėlto tenka pripažinti, kad keičiantis kartoms, dinamiškoje švietimo sistemos situacijoje, ruošiant Z kartos jaunuolius profesinei veiklai, vis dažniau susiduriama su studentų, nutraukusių studijas, skaičiaus rodiklių didėjimu, studijų nutraukimo priežastis siejant tiek su vidinės asmens motyvacijos ir domėjimosi studijų dalykais stoka (Adamonienė, 2010, Jokštaitė, Pociūtė, 2014, Kehm, Larsen, Sommersel, 2019), tiek ir su aukštosios mokyklos, kaip institucijos, lygmeniu apimant studijų proceso organizavimo, studijų turinio aktualumo ruošiantis profesinei veiklai, taikomų šiuolaikinių mokymo metodų ir informacinių technologijų bei programinės įrangos ir kt. aspektus (Samašonok, Kamienas, Juškevičienė, 2023). Tad akivaizdu, kad Z kartos studentų mokymosi motyvacijos užtikrinimo studijų procese tema šiuolaikinio aukštojo mokslo sektoriuje įgyja ypatingą svarbą. Kita vertus, žvelgiant retrospektyviai, skirtingos kartos (ypač naujoji Z karta) dažnai aptariamos įvairiais aspektais, tačiau nagrinėjant mokslinę literatūrą, tyrimų apie Z kartos efektyvaus ugdymo užtikrinimo galimybes aukštojo mokslo studijose, pasigendama. Šiame kontekste kyla būtinybė gilintis į Z kartos, gyvenančius informacinėje visuomenėje, studijuojančiųjų požiūrį bei jų nuostatą į studijas, analizuoti studijų proceso organizavimo ypatumus, identifikuoti šios kartos mokymosi motyvaciją aukštojo mokslo studijose lemiančius veiksnius bei ieškoti sprendimų, kaip ruošiant jaunuolius profesinei veiklai, užtikrinti pastarųjų mokymosi motyvaciją. Tokio pobūdžio tyrimai turi išliekamąją vertę mokslo diskusijoje numatant Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo

galimybes. Įvertinus temos aktualumą bei tyrimo rezultatų praktinį reikšmingumą, šiame straipsnyje atskleidžiami Z kartos studentų požiūrio į studijas bei pastarųjų mokymosi motyvaciją lemiančių veiksnių rodikliai bei, remiantis tyrimo duomenimis, pateikiami galimi Z kartos mokymosi motyvacijos užtikrinimo būdai, tai siejant su aukštosios mokyklos, kaip organizacijos, lygmeniu.

Tyrimo problema apibrėžiama klausimu: kokie Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje lemiantys veiksniai ir jos užtikrinimo galimybės atsižvelgiant į esmines šios kartos charakteristikas.

Tyrimo tikslas. Ištirti Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje lemiančius veiksnius bei numatyti jos užtikrinimo galimybes.

Tyrimo metodologija. Taikyti tyrimo metodai: a*nalitinis aprašomasis* (mokslinės literatūros analizė, sisteminimas, apibendrinimas, lyginimas), *kiekybinis* (anketinė aklausa) ir *statistinis* (taikant SPSS programinės įrangos 17 versijos duomenų paketą, apskaičiuotos vidutinės reikšmės bei procentinis pasiskirstymas (dažnis), o daugiau nei dviejų grupių vidurkiams palyginti taikyta dispersinė analizė – ANOVA). *Tyrimo imtis.* Siekiant užtikrinti tyrimo reprezentatyvumą, buvo apklausti 309 aukštosios mokyklos Z kartos pirmo – ketvirto kursų studentai, artimai susiję su nagrinėjama tema ir galintys suteikti pakankamai informacijos apie tiriamą problemą. *Tyrimo organizavimas*. Atliekant apklausą anketa buvo platinama internetu naudojant „Office 365“. Vadovaujantis kokybės kontrolės principu, buvo atliktas vidinis tyrimo atlikimo patikrinimas (anketos užpildymo pilnumas, apklausos vykdymo nuoseklumas ir trukmė), o ne iki galo arba neatidžiai užpildytos anketos (pvz., visose anketos grafose pažymėti vienodi skaičiai ir pan.) buvo neįtrauktos į tolesnę duomenų analizę. Tyrimo dalyviai buvo supažindinti apie atliekamo tyrimo tikslą ir apie tai, kad tyrimas vykdomas anonimiškai, o gauti rezultatai bus apdoroti ir pateikti apibendrinti. Tyrimo metu buvo laikomasi savanoriškumo ir laisvo apsisprendimo dalyvauti apklausoje etikos principo. Konfidencialumo sumetimais straipsnyje aukštosios mokyklos pavadinimas nėra įvardijamas.

Tyrimo rezultatai. Atlikta statistinė duomenų analizė parodė, kad nepaisant to, jog daugiau nei du trečdaliai (70.2 proc.) Z kartos studentų savo mokymosi motyvaciją aukštojoje mokykloje įvertino pakankamai aukštais ir aukščiausiais įverčiais (nuo 6 iki 10 balų), vis dėlto beveik trečdalis (29.8 proc.) tiriamųjų pasižymi žemu mokymosi motyvacijos, įvertintos nuo 1 iki 5 balų, lygiu. Tyrimo rezultatai atskleidė, kad kompetentingi bei įkvepiantys dėstytojai, savo srities specialistai, o taip pat geri dėstytojų ir studentų tarpusavio santykiai, grįsti bendradarbiavimu, yra vieni iš Z kartos studentų mokymosi motyvaciją studijuojant aukštojoje mokykloje lemiančių veiksnių. Taip pat lankstus paskaitų lankymo tvarkaraštis bei pasiekimai moksle ir geri studijų rezultatai įvardinti kaip vieni iš veiksnių, sąlygojančių Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje, o teigiami santykiai su kurso draugais mažiausiai siejami su Z kartos studentų mokymosi motyvacija. Naudojant kiekybinio tyrimo strategiją paaiškėjo, kad respondentai Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo galimybes sieja su patraukliai ir įdomiai organizuojamomis paskaitomis, kurių metu naudojamos įvairios šiuolaikinės technologijos ir mokymo metodai, o taip pat su studijų turiniu, atitinkančiu šiuolaikinės darbo rinkos poreikius bei bendradarbiavimu grįstu studentų ir dėstytojų komunikavimu. Taip pat tyrimo dalyvių vertinimu, organizuojamos kviestinių svečių (pvz., iš verslo pasaulio) paskaitos, aiškiai pateikti nurodymai ir terminai užduotims atlikti yra vieni iš Z kartos studentų mokymosi motyvacijos užtikrinimo būdų. Kita vertus, respondentų įsitikinimu, siekiant užtikrinti Z kartos studentų mokymosi motyvaciją, būtinas lankstesnis atsiskaitymų organizavimas suderinant atsiskaitymus bei tinkamai paskirstant jų krūvį ir tiksliai nustatant terminus.

Tyrimo apribojimai. Tyrimo ribotumas yra tas, kad apklausa vyko internetu naudojant „Office 365“, o tai lėmė sąlyginai žemą užpildytų anketų grįžtamumą. Todėl ateityje būtų tikslinga atlikti tyrimą pakartotinai praplečiant tiriamųjų imtį, kas leistų atlikti lyginamąją duomenų analizę atsižvelgiant į tiriamųjų charakteristikas, išskiriant skirtingų mokslų studijų srities, lyties ir kitus sociodemografinius rodiklius, įtraukiant daugiau kintamųjų bei palyginant kolegijose ir universitetuose studijuojančių skirtingų studijų formų studentų nuomones. Taip pat ateityje būtų tikslinga taikyti skirtingas tyrimo metodikas ir tyrimo rezultatus papildyti kitais informacijos rinkimo metodais (interviu būdu, organizuojant sutelktąsias grupes ir kt.).

Tyrimo originalumas/tyrimo vertė. Tyrimo originalumas sietinas su tuo, kad taikant dispersinę analizę (ANOVA), ištirtas mokymosi motyvaciją aukštojoje mokykloje lemiančių veiksnių vertinimo išreikštumas skirtingo kurso Z kartos tyrimo dalyvių grupėse bei remiantis tyrimo dalyvių vertinimu, numatytos Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo galimybės atsižvelgiant į esmines šios kartos charakteristikas. Tyrimo rezultatai turės išliekamąją vertę mokslo diskusijoje, nes konstatuojamuoju tyrimu identifikuotos Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje probleminės sritys, o taikant kiekybinio tyrimo strategiją, atskleisti Z kartos studentų mokymosi motyvaciją lemiantys veiksniai. Taip pat straipsnis reikšmingas tuo, nes, remiantis tyrimo rezultatais, numatytos Z kartos studentų mokymosi motyvacijos užtikrinimo galimybių įžvalgos organizuojant studijų procesą aukštojoje mokykloje atsižvelgiant į esmines šios kartos charakteristikas. Šis tyrimas papildė anksčiau atliktų tyrimų radinius bei leido geriau suprasti, kaip organizuoti studijų procesą siekiant užtikrinti Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje ruošiant jaunuolius profesinei veiklai.

TEORIJOS ANALIZĖ

Šiandien bene plačiausiai mokslininkų aptarinėjamos ir išskiriamos trys paskutinės kartos – X, Y ir Z, iš kurių daugiausiai susidomėjimo sulaukia Z karta, gimusi naudojant internetą ir užaugusi su visais šiuolaikinių technologijų patogumais. Tad nenuostabu, kad per pastaruosius kelis dešimtmečius tiek Lietuvoje, tiek ir užsienyje pagausėjo tyrimų, kuriuose nagrinėjmi Z kartos ypatumai, pateikiami susisteminti duomenys apie šiai kartai būdingas esmines charakteristikas, asmenybės savybes ir požymius. Viena vertus, aptariant kartų skirtumus, Pečiuliauskienė, Valantinaitė, Malonaitienė (2013), apibendrinusios kitų autorių tyrimus, teigia, kad Z kartos smegenų struktūra skiriasi nuo ankstesnių kartų asmenų smegenų struktūrų, kuomet atsakingos už vizualinę informaciją smegenų sritys yra labiau išsivysčiusios ir pakitusios, lyginant su ankstesnių kartų atstovais. Tad, pasak mokslininkių, akivaizdu, jog Z kartos asmenų mokymasis, informacijos paieška, bendravimo ir individualizmo įpročiai, o taip pat vaizdinės, garsinės medžiagos ir kitų medijų suvokimas iš esmės skiriasi nuo ankstesnių kartų. Taip pat kartų skirtumai apibūdinami išskiriant požiūrio į gyvenimą, įsitraukimo/dalyvavimo, atliekamų vaidmenų, aktyvumo lygio, žinių/informacijos apimčių, kvalifikacijos ir orientyrų požymius bei aptariami pagal pasaulio suvokimo, motyvacijos ar požiūrio į darbą aspektus (Targamadzė, 2014, Guščinskienė, Kaminskaitė, 2019). Pasak tyrėjų, Z kartos asmenys labiau, negu X ir Y, ambicingi, turintys savo nuomonę, socialiai sąmoningesni ir orientuoti į pragmatizmą bei karjeros galimybes (Targamadzė, 2014). Kitų autorių, tyrinėjusių kartų skirtumus, teigimu, Z kartos atstovai išsiskiria gebėjimu apdoroti didelį informacijos kiekį, atlikti kelis darbus vienu menu (Pečiuliauskienė, Valantinaitė, Malonaitienė, 2013). Vis dėlto, tenka pastebėti, kad nors Z kartos aktyvumo lygis yra aukštas, o žinių ir informacijos kiekis yra stiprus, tačiau šios kartos atliekamas vaidmuo sietinas su

individualizmu, kuomet mokomasi tik dėl savęs, orientuojantis į asmeninius poreikius (Pierson, Mante-Meijer, Loos, 2011).

Taip pat kartų skirtumai išryškėja, kuomet kalbama apie požiūrį į mokslą bei akademinę bendruomenę. Guščinskienė, Kaminskaitė (2019), nagrinėdamos Z kartos ypatumus akademinėje erdvėje, atkreipia dėmesį į Z kartos gebėjimus, o kiti autoriai (Pečiuliauskienė, Valantinaitė, Malonaitienė, 2013, Targamadzė, 2014) akcentuoja technologijų vaidmenį Z kartos ypatumų bei bruožų raiškos formavimuisi. Mokslininkų teigimu, Z kartos atstovai, gimę kartu su technologijų egzistavimu, turi labai plačias galimybes tobulėti ir gauti jiems aktualią informaciją pasitelkus naujausias technologijas. Susipažinus su įvairių autorių tyrimais, reikia pripažinti, jog Z karta yra kitokia ir su ja reikia išmokti dirbti, o ugdytojams reikia prisitaikyti prie specifinių šios kartos mokymosi gebėjimų ir juos išnaudoti geresnio rezultato linkme. Kita vertus, udgymo procesas dirbant su Z karta turėtų būti grindžiamas ne tik suteikiamomis žiniomis, bet ir inovatyviais požiūriais bei įrankiais, atsižvelgiant į esmines Z kartos charakteristikas, atliepiant jųjų poreikius bei užtikrinant aukštą mokymosi motyvacijos lygį. Tad analizuojant Z kartos mokymosi motyvacijos reiškinį aukštosios mokyklos, kaip institucijos, lygmeniu, pagrįstai keliamas klausimas, kaip užtikrinti efektyvų studijų procesą ruošiant Z kartos jaunuolius profesinei veiklai, numatant galimus šios kartos studentų mokymosi motyvacijos užtikrinimo būdus.

Nemažai mokslininkų, nagrinėjančių Z kartos studentų situaciją aukštojo mokslo studijose, mokymosi motyvaciją sieja su studijų proceso organizavimu. Pavyzdžiui, Kehm, Larsen, Sommersel (2019) studijuojančiųjų mokymosi motyvacijos sąsajas su studijų proceso organizavimo sritimi analizuoja apimant studijų struktūros ir egzaminų organizavimo aspektus. Apie tai savo darbuose kalba ir kiti autoriai (Adomaitienė, 2010, Žibėnienė, 2014, Behr, Giese, Kamdjou, Theune, 2021) teigdami, jog keliami aukštojo mokslo įstaigos reikalavimai gali turėti reikšmingą poveikį studijuojančiųjų mokymosi motyvacijai, o Bumbacco, Scharfe (2020) didelį studijų mokymosi krūvį sieja su studentų perdegimu. Mokslininkų teigimu, fizinis ir emocinis krūvis, patiriamas studijų procese, gali būti ne tik mokymosi motyvaciją mažinantis veiksnys, tačiau ir siejamas su stipriau išreikštu polinkiu nutraukti studijas. Tai paantrina Mostert, Pienaar (2020) tyrimo duomenys, parodę, kad stipriau išreikštas perdegimas gali sąlygoti mažesnį patenkinimą studijomis, o tai, be abejonės, mažina mokymosi motyvaciją. Kiti autoriai (Mouton, Zhang, Ertl, 2020, Behr, Giese, Kamdjou, Theune, 2020) taip pat kaip vieną iš mokymosi motyvaciją mažinančių veiksnių įvardina keliamų per didelių studijų reikalavimų, neatitinkačių studentų turimų įgūdžių bei kompetencijų, naštą.

Kiek kitaip su studijų proceso organizavimu susijusių veiksnių reikšmę ir svarbą mokymosi motyvacijai pabrėžia kiti autoriai, kurių tyrimų rezultatų pagrindu galima teigti, kad patraukliai ir įdomiai organizuojamos paskaitos bei paskaitų turinio kokybė ir jo atitikimas šiuolaikinės darbo rinkos poreikius yra vieni iš veiksnių, galinčių lemti pasitenkinimą studijomis (Samašonok, 2019), o tuo pačiu ir aukštesnį studijuojančiųjų mokymosi motyvacijos lygį. Tad ruošiant Z kartos jaunuolius profesinei veiklai, pastebima akivaizdi tendencija, kad aukštosios mokyklos turi atliepti darbo rinkos poreikius ir rengti paklausius specialistus. Apie tai kalba ir kiti tyrėjai, pabrėždami, kad ugdymo procese perteikiamos žinios turi būti neatsiejamos nuo praktinių užsiėmimų (Martišauskienė, 2016, Samašonok, Kamienas, Juškevičienė, 2023) bei parodyti pasaulio vaizdą ir esmę bei turi būti integralios, gyvenimiškos, prasmingos tiek besimokančiam individui, tiek sociokultūrinei visuomenei (Bruzgelevičienė, 2008). Šiai minčiai antrina ir Staiculescu, Richiteanu (2018) atlikto tyrimų duomenys, rodantys, kad studijų procese organizuojant vizitus į įmones, įgyvendinant susitikimus su verslo atstovais, įtraukiant studentus į darbo grupes, projektinę veiklą ir t.t., ne tik formuojamas studijuojančiųjų teigiamas požiūris į studijas bei

didinama mokymosi motyvacija, tačiau tai netgi gali sudaryti sąlygas suvaldyti ir mažinti nutraukusiųjų studijas rodiklius. Tuo tarpu Behr, Giese, Kamdjou, Theune (2021) kokybiškai organizuojamas studijas įvardina kaip vieną iš studijų patrauklumą ir mokymosi motyvaciją didinančių veiksnių. Kita vertus, gyvenant informacinių technologijų amžiuje ir įvertinus tą faktą, kad Z karta yra technologijų karta, įvairių informacinių technologijų taikymo bei skaitmenizavimo galimybių išnaudojimo poreikis organizuojant ugdymo procesą ypač aktualus tapo ruošiant Z kartos studentus profesinei veiklai (Pečiuliauskienė, Valantinaitė, Malonaitienė, 2013, Targamadzė, 2020). Apie tai savo darbuose kalba ir Urbonienė, Bartuševičienė, Puidokaitė-Savickienė (2019), atkreipdamos dėmesį į tai, kad siekiant motyvuoti šiandienos jaunimą, studijų procese būtina išnaudoti technologijas ir sudaryti galimybę studijuojantiesiems mokymosi turinį pasiekti įvairiomis IT priemonėmis, o skaitymui, klausymui, žiūrėjimui, grįžtamojo ryšio realizavimui naudoti įvairias formas. Kiti autoriai (Matúšová, Hrušková, 2019) taip pat kaip vieną iš studijų efektyvumo ir studijuojančiųjų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo prielaidų įvardina programinės įrangos taikymo ir kompiuterinių technologijų išnaudojimo svarbą.

Ne mažiau reikšmingos įžvalgos, patvirtinančios su studijomis susijusių lūkesčių ir mokymosi motyvacijos sąsajas. Mokslininkai, remdamiesi tyrimų rezultatais, plėtoja mintį, kad nepatenkinus studijuojančiųjų lūkesčių, įžvelgiama mokymosi motyvacijos mažėjimo tendencija ir netgi atsirandanti studijų nutraukimo rizika (Behr, Giese, Kamdjou, Theune, 2021). Šiai minčiai paantrina ir kiti autoriai, nepateisintų lūkesčių motyvą įvardindami kaip vieną veiksnių, siejamų su mokymosi motyvacijos stoka (Paura, Arhipova, 2014, Westrick, Robbins, Radunzel, Schmidt, 2015, Mouton, Zhang, Ertl, 2020), o Urbonienė, Bartuševičienė, Puidokaitė-Savickienė (2019), Samašonok, Žonych (2020) atkreipia dėmesį į tai, jog siekiant užtikrinti studentų mokymosi motyvaciją, svarbu identifikuoti jų poreikius ir su studijomis susijusius lūkesčius.

Verta pažymėti, kad kiti autoriai kaip vieną iš mokymosi motyvaciją lemiančių veiksnių išskiria santykių su aukštosios mokyklos bendruomene (studentais, dėstytojais bei administracija) kokybę. Kaip antai Bruzgelevičienė (2008), Martišauskienė (2016) pabrėžia lygiateisiško bendravimo svarbą, o kiti mokslininkai savo tyrimuose išskiria akademinės paramos ir pagalbos aktualumą, gaunamą tiek iš dėstytojų, tiek ir iš bendraamžių (Fourie, 2017, 2020, Guščinskienė, Kaminskaitė, 2019). Studijų organizavimo sąlygas, siejant tai su suteikiama dėstytojų akademine parama nurodo ir kiti autoriai (Richard, Joseph, 2008, Allan, Pileičikienė, 2010, Žibėnienė, 2014, Martišauskienė, 2016), o Larmuseau, Desmet, Depaepe (2019), Mostert, Pienaar (2020) tyrimų rezultatai taip pat parodė paramos, gaunamos iš aukštosios mokyklos bendruomenės narių, svarbą studentų pasitenkinimo studijomis jausmui ir mokymosi motyvacijai siekti. Kiti autoriai pabrėžia materialinės paramos aktualumą (Behr, Giese, Kamdjou, Theune, 2021), o Pukelis (2007), Guščinskienė, Čiburienė (2018) įvardina kuo didesnio aukštojoje mokykloje teikiamų papildomų paslaugų kiekio konsultacijų karjeros ir profesinio orientavimo klausimais svarbą.

Kiti autoriai studentų mokymosi motyvacijos užtikrinimo galimybes sieja su dėstytojų vaidmeniu, jų turimais pedagoginiais įgūdžiais (Žibėnienė, 2014), gebėjimu patraukliai pateikti dėstymo medžiagą (Miakinkovienė, Klupšienė, 2017) bei įvardina dėstytojų grįžtamojo ryšio studentams apie studijų rezultatus realizavimo aktualumą ir jo sąsajas su mokymosi motyvacija. todėl, tikėtina, kad grįžtamojo ryšio efektyvumo užtikrinimas gali būti viena iš Z kartos studentų mokymosi motyvacijos užtikrinimo prielaidų. Tuo tarpu Behr, Giese, Kamdjou, Theune (2021) dėstytojų menkus turimus pedagoginius įgūdžius įvardina kaip vieną iš veiksnių, mažinančių studentų mokymosi motyvaciją.

Taip pat svarbu paminėti, kad nagrinėdami mokymosi motyvaciją lemiančius veiksnius ir jos užtikrinimo prielaidas, tyrėjai pabrėžia studijuojančiojo pasitikėjimo savimi ir savivertės svarbą. Tokios įžvalgos formuojamos remiantis Nemtcan, Sæle, Gamst-Klaussen, Svartdal (2020) tyrimo duomenimis, kuriame pažymima, kad studijų metu patiriama sėkmė ir aukšti akademiniai rezultatai gali būti vieni mokymosi motyvaciją sąlygojančių veiksnių, kurių svarbą pabrėžia ir kiti autoriai (Alcan, 2014, Paura, Arhipova, 2014, Westrick, Le, Robbins, Radunzel, Schmidt, 2015). Kitų autorių (Kehm, Larsen, Sommersel, 2019) tyrimai taip pat parodo aukštų akademinių pasiekimų tiesioginį ryšį su studijų, kaip patrauklių, suvokimu, o tuo pačiu ir su aukštesniu mokymosi motyvacijos lygiu. Casanova, Cervero, Núñez, Almeida, Bernardo (2018) taip pat paantrina šiam ryšiui teigdami, kad kuo aukštesni studijų rezultatai, tuo didesnė tikimybė, kad studentas bus labiau motyvuotas studijuoti. Priešingu atveju, mokslininkų teigimu, patiriama nesėkmė studijų metu (ypač pirmosios sesijos metu) ir pasiekti žemi akademiniai rezultatai mažina mokymosi motyvaciją ir netgi gali būti viena iš studijų nutraukimo priežasčių. Remiantis šiuo faktu, akivaizdu, kad studijų procese ruošiant Z kartos studentus profesinei veiklai, labai svarbu siekiant užtikrinti jų mokymosi motyvaciją, kuo anksčiau identifikuoti studijuojantiesiems kylančius mokymosi sunkumus ir sudaryti palankias sąlygas kuo dažniau studijų procese patirti sėkmę (Tolūtienė, Jovarauskaitė, 2011, Tolūtienė, 2012).

Įvertinus Z kartos ypatumus, akivaizdu, kad šios kartos atstovai nesimokys to, ko nenori, ar kas jiems neįdomu. Tad būtinybe tampa ne tik viso mokymo ir mokymosi sistemos, bet ir pačios mokymo esmės kaita. Nagrinėjant Z kartos studentų mokymosi motyvacijos užtikrinimo prielaidas, aukštojo mokslo institucijoms iškilo būtinybė keistis, tobulinti esamus procesus bei ieškoti naujų studijų proceso organizavimo būdų atsižvelgiant į esmines šiai kartai būdingas charakteristikas. Tokios įžvalgos formuojamos apibendrinus anksčiau minėtų tyrimų duomenis, rodančius, kad visos studijų procese taikomos priemonės, t.y., šiuolaikiniai mokymo ir mokymosi būdai, informacinių technologijų išnaudojimas, studijų krūvis, socialinių santykių su dėstytojais ir bendrakursiais kokybė, studijuojančiųjų lūkesčių pateisinimas, o taip pat studijų turinys, atitinkantis šiandieninės darbo rinkos poreikius bei studijų procese sudarytos galimybės tobulinti praktinius įgūdžius bei juos pritaikyti profesinėje veikloje ateityje gali būti vienos iš Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo galimybių.

TYRIMO METODOLOGIJA

Tyrimo metodai. *Analitinis aprašomasis.* Mokslinės literatūros ir su nagrinėjama tema susijusių tyrimų sisteminė analizė, paremta lyginamuoju ir apibendrinimo metodais. *Kiekybinis metodas.* Duomenims surinkti buvo taikytas kiekybinis tyrimo metodas (anketinė apklausa). Klausimyną sudarė klausimai, skirti surinkti demografinius ir socialinius duomenis apie respondentus, o taip pat remiantis teorinėmis įžvalgomis ir mokslinėje literatūroje išskirtais kriterijais, buvo konstruojamos klausimų grupės, į kurias įtraukti teiginiai, skirti nustatyti tyrimo dalyvių mokymosi motyvaciją aukštojoje mokykloje lemiančius veiksnius bei įvertinti respondentų požiūrį į Z kartos studentų mokymosi motyvacijos užtikrinimo galimybes. Analizuojant mokymosi motyvacijos ir jos užtikrinimo reiškinį, mokslinėje literatūroje bene dažniausiai atkreipiamas dėmesys į ugdymo institucijos (šiuo atveju aukštosios mokyklos) lygmenį, apimant studijų proceso organizavimo, studijų turinio aktualumo, teikiamų žinių paklausumo, dėstytojų profesionalumo bei studentų socialinių santykių su dėstytojais ir bendrakursiais kokybės užtikrinimo, o taip pat studijų proceso modernizavimo išnaudojant šiuolaikines technologijas ir programas bei taikomų šiuolaikinių mokymo ir mokymosi būdų ir kt. aspektus. Martišauskienės (2016), Behr, Giese, Kamdjou, Theune (2021) teigimu, dėstytojų

profesionalumas, savo dalyko išmanymas bei turimos kompetencijos ir pedagoginiai įgūdžiai, o taip pat gebėjimas efektyviai naudoti aktyviuosius mokymosi metodus, integruoti studentų ir dėstytojų bendradarbiavimą į studijų procesą yra vieni iš mokymosi motyvaciją lemiančių veiksnių. Remiantis pastaraisiais faktais, į klausimyną buvo įtraukti teiginiai, leidęs įvertinti tyrimo dalyvių požiūrį į dėstytojo vaidmens, o taip pat komunikacijos tarp dėstytojo ir studento kokybės užtikrinimo svarbą pastarųjų mokymosi motyvacijos raiškai. Tuo tarpu kiti autoriai, nagrinėję mokymosi motyvacijos užtikrinimo prielaidas, reikšmę teikia kokybiškai organizuojamoms studijoms (Behr, Giese, Kamdjou, Theune, 2021) ir mokymosi motyvaciją sieja su studijų patrauklumu bei išskiria paskaitų metu patraukliai pateikiamos studijų medžiagos, studijų metu taikomų šiuolaikinių mokymo ir mokymosi metodų ir jų įvairovės (Samašonok, 2019), o taip pat studijų turinio, orientuoto į šiandieninės darbo rinkos poreikius bei studijų procese sudaromų galimybių tobulinti praktinius įgūdžius ir įgyti vertingos patirties ruošiantis profesinei veiklai (Martišauskienė, 2016, Samašonok, Kamienas, Juškevičienė, 2023) aspektus, o Pečiuliauskienė, Valantinaitė, Malonaitienė (2013), Targamadzė (2014), Matúšová, Hrušková (2019), Samašonok, Žonych (2020), Targamadzė (2020) pabrėžia sudarytų galimybių studijuojantiesiems mokymosi turinį pasiekti įvairiomis IT priemonėmis svarbą bei programinės įrangos taikymo ir kompiuterinių technologijų diegimo studijų procese aktualumą siekiant motyvuoti šiandienos jaunimą. Remiantis šia nuostata, siekiant išsiaiškinti Z kartos studentų mokymosi motyvaciją lemiančius veiksnius ir tyrimo dalyvių požiūrį į jos užtikrinimo galimybes, į klausimyną įtraukti teiginiai, siejami su studijų patrauklumu apimant tokius aspektus kaip studijų turinio aktualumas ruošiantis profesinei veiklai, taikomi šiuolaikiniai mokymo metodai ir jų įvairovė, informacinių technologijų ir programinės įrangos taikymas. Taigi, mokslinėje literatūroje įvardinti mokymosi motyvaciją lemiantys veiksniai atkreipiant dėmesys į aukštosios mokyklos, kaip institucijos, lygmenį, leido išskirti pagrindinius teiginius, kurie yra reikšmingi Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje lemiantiems veiksniams įvertinti ir numatyti galimus jos užtikrinimo būdus. Klausimyne pateiktų teiginių galimi atsakymų variantai vertinami penkių balų sistema pagal Likerto skalę (nuo 1 iki 5), kur penki balai reiškia stipriausią sutikimo su teiginiu laipsnį (visiškai sutinku/pritariu), o vienas balas – stipriausią nesutikimo laipsnį (visiškai nesutinku/nepritariu). Rezultatai gaunami susumuojant teiginių atsakymų variantus – skaitines reikšmes. Klausimyno validumas ir patikimumas nustatyti apskaičiavus Cronbacho alpha (angl. *Cronbach's alpha*) reikšmes. Statistinės duomenų analizės rezultatai rodo, kad bendras klausimyno teiginių (kintamųjų skaičius = 30) vidinis suderinamumo laipsnis pakankamai aukštas (Cronbacho alpha = 0,8864) ir varijuoja nuo 0,8752 iki 0,8953. Taip pat buvo patikrintas kiekvienoje klausimyno grupėje atskirai kintamųjų vidinis suderinamumas, o tai leido išsiaiškinti, ar visi teiginiai atspindi tiriamąjį dydį ir įgalino patikslinti reikiamų teiginių klausimuose skaičių. Patikrinus klausimyno teiginių (n=13) grupės *Veiksniai, motyvuojantys studijuoti aukštojoje mokykloje,* vidinį suderinamumą, apskaičiuota Cronbacho alpha = 0.9193 ir varijuoja nuo 0.9067 iki 0.9237, o apskaičiavus *Z kartos studentų mokymosi motyvacijos didinimo galimybės* grupės, kurią sudaro 16 teiginių, Cronbacho alpha koeficiento reikšmes, vidinis suderinamumo laipsnis pakankamai aukštas (Cronbacho alpha = 0.8851) ir varijuoja nuo 0.8743 iki 0.8936. Remiantis tuo, kad vidinis suderinamumas turėtų būti nuo 0 iki 1, o Cronbacho alpha koeficiento reikšmė, siekianti 0.60 vertinama kaip tinkama tyrimams ir pagrindžia aukštą klausimyno patikimumą (Pakalniškienė, 2012), šio tyrimo metu apskaičiuotos Cronbacho alpha rodo, kad į sudarytą klausimyną įtraukti kintamieji atspindi tiriamąją dalį ir matuoja tai, kas numatyta, t.y., klausimai yra orientuoti į Z kartos studentų mokymosi motyvacijos lemiančių veiksnių ir jos didinimo galimybių užtikrinimo klausimų nagrinėjimą. *Duomenų statistinės analizės metodai.* Tyrimo metu

surinktiems duomenims apdoroti taikyta statistinė duomenų analizė. Kiekybinio tyrimo instrumentą sudarė ranginės ir nominalinės skalės, todėl buvo skaičiuojami absoliutieji ir procentiniai dažniai, skalių vidurkiai. Likerto skalės kintamiesiems apibūdinti buvo naudojamas vidurkis (M) ir jo standartinis nuokrypis (SD). Daugiau nei dviejų grupių vidurkiams palyginti taikyta dispersinė analizė – ANOVA. Kai reikšmingumo lygmuo siekė mažiau nei 0.05, požymių skirtumas laikytas statistiškai reikšmingu. Duomenų statistinė analizė atlikta taikant SPSS programinės įrangos 17 versijos duomenų paketą ir MS Excel 2016 kompiuterinę programą.

Tiriamo dalyvių imties charakteristika. Tyrime dalyvavo 309 aukštosios mokyklos studentai, iš kurių 227 (73.5 proc.) merginos ir 82 (26.5 proc.) vaikinai. Apklausos metu paaiškėjo, kad daugiau negu du trečdaliai apklausoje dalyvavo nuolatinių (n=216 (69.9 proc.)) studijų formą pasirinkę studentai, ir tik mažoji tyrime dalyvavusių studentų dalis yra nuotolinių (n=39 (12.6 proc.)), ištęstinių (n=20 (6.5 prc.)) bei sesijinių (n=34 (11 proc.)) studijų studentai. Diferencijuojant duomenis pagal kursą, paaiškėjo, kad daugiausiai atsakiusiųjų yra pirmo kurso studentai (n=138 (44.7 proc.)), o mažiausia atsakiusiųjų dalis yra ketvirtakursiai (n=6 (1.9 proc.). Taip pat beveik ketvirtadalis tyrimo dalyvių yra antro kurso (n=75 (24.3 proc.), o beveik trečdalis – trečio kurso (n=90 (29.1 proc.) studentai.

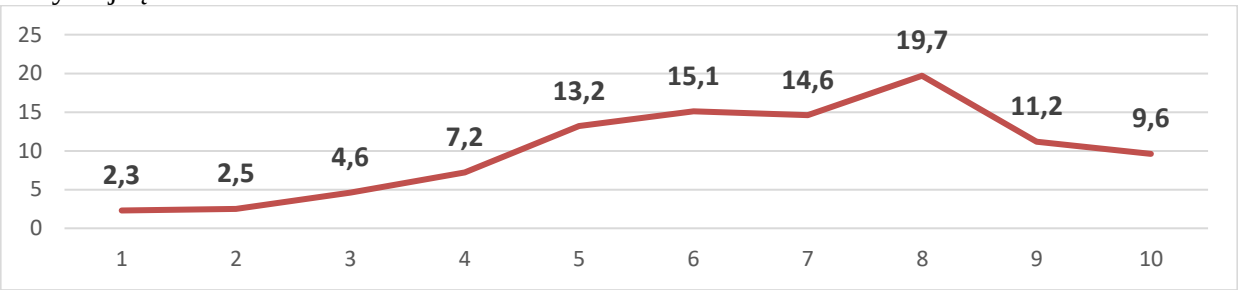
Tyrimo organizavimas. Organizuojant tyrimą, buvo vadovautasi šia sistemine logika: 1) artimos darbo temai mokslinės ir metodinės literatūros bei su nagrinėjama tema susijusių atliktų mokslinių tyrimų rezultatų analizavimas, vertinimas, apibendrinimas. Tai padėjo sudaryti tyrimo instrumentą. 2) diagnostinio tyrimo atlikimas, leidęs ištirti Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje raišką ir ją lemiančius veiksnius bei įvertinti tyrimo dalyvių požiūrį į Z kartos studentų mokymosi motyvacijos užtikrinimo galimybes atsižvelgiant į esmines šios kartos charakteristikas. Taikytas anketos platinimo būdas – apklausa internetu naudojant „Office 365“. Atliekant apklausą buvo vadovautasi kokybės kontrolės principu, t.y., buvo atliktas vidinis tyrimo atlikimo patikrinimas (anketos užpildymo pilnumas, apklausos vykdymo nuoseklumas ir trukmė). Ne iki galo arba neatidžiai užpildytos anketos (pvz., visose anketos grafose pažymėti vienodi skaičiai ir pan.) buvo neįtrauktos į tolesnių duomenų analizę. Tolesnei duomenų analizei naudotos 309 anketos, kurios laikytinos kaip tinkamos statistinei analizei. 3) mokslinės literatūros analizės ir tyrimo duomenų pagrindu išvadų formulavimas numatant Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo galimybes.

Tyrimo etika. Atliekant tyrimą buvo vadovautasi socialinio tyrimo etikos principais. Klausimyno įžangoje buvo pateikta informacija apie tai, kas atlieka tyrimą, koks tyrimo tikslas bei kur bus panaudoti surinkti duomenys. Tyrimas buvo vykdomas anonimiškai, o gauti rezultatai apdoroti ir pateikti apibendrinti. Duomenų apsaugos ir slaptumo principus nebuvo sunku išlaikyti, nes tiesioginio ryšio tarp respondento ir jo užpildytos anketos įžvelgti nebuvo įmanoma, kadangi anketoje nebuvo prašoma nurodyti nei vardo, nei pavardės ar kitokios identifikavimo informacijos. Taip pat tyrimo metu buvo laikomasi savanoriškumo ir laisvo apsisprendimo dalyvauti apklausoje etikos principo. Respondentai galėjo laisvai apsispręsti dėl dalyvavimo ar nedalyvavimo tyrime, todėl anketos užpildymas buvo traktuojamas kaip sutikimas dalyvauti tyrime. Taip pat tyrimo dalyviai buvo supažindinti apie galimybę bet kuriuo tyrimo momentu pasitraukti iš tyrimo prašant jų duomenų neįtraukti į tolimesnę rezultatų analizę. Aukštoji mokykla, kurioje buvo atliekamas tyrimas, buvo supažindinta apie tyrimo įgyvendinimo atitikimą etikos principams. Konfidencialumo sumetimais straipsnyje aukštosios mokyklos pavadinimas nėra įvardijamas.

TYRIMO REZULTATAI IR DUOMENŲ ANALIZĖ

Z kartos studentų mokymosi motyvacijos tema nepraranda savo aktualumo ir mokslo erdvėje kelia vis naujas diskusijas bei skatina ieškoti galimų būdų siekiant valdyti pastarųjų sėkmingą ruošimosi profesinei veiklai aukštojoje mokykloje procesą. Ieškant veiksmingesnių būdų, kaip organizuoti ugdymo procesą aukštojoje mokykloje dirbant su Z karta siekiant užtikrinti pastarųjų mokymosi motyvaciją, atlikta anketinė apklausa.

Analizuojant bendroje imtyje, kaip tyrimo dalyviai bendrai vertina savo mokymosi motyvaciją aukštojoje mokykloje, nustatyta (žr. 1 pav.), kad beveik pusė Z kartos studentų (49.4 proc.) savo mokymosi motyvaciją įvertino pakankamai (nuo 6 iki 8 balų iš 10 galimų). Tuo tarpu tik kiek mažiau nei ketvirtadalis (20.8 proc.) tyrimo dalyvių savo mokymosi motyvaciją įvertino aukščiausiais įverčiais (atitinkamai: 10 balų – 9.6 proc., 9 balais – 11.2 proc.). Vis dėlto, net beveik trečdalis (29.8 proc.) tyrime dalyvavusių Z kartos studentų savo mokymosi motyvaciją aukštojoje mokykloje įvertino nuo 1 iki 5.



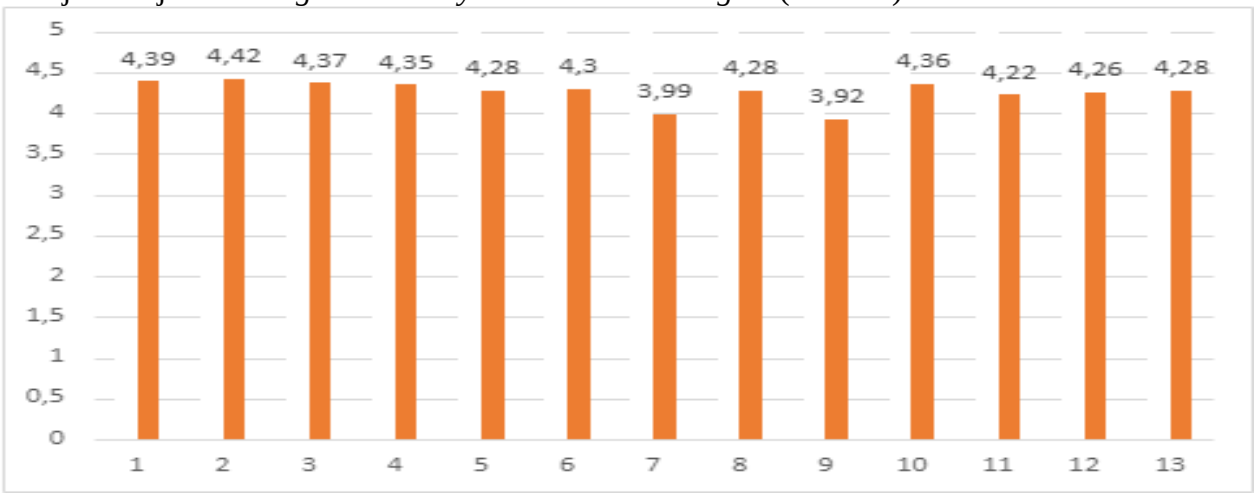
1 pav. Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje vertinimas (n=309; proc.)

Apibendrinant tai, kas išdėstyta, matyti, jog nepaisant to, kad daugiau nei du trečdaliai tyrime dalyvavusių Z kartos studentų savo mokymosi motyvaciją įvertino aukštais ar aukščiausiais įverčiais, vis dėlto beveik trečdalio tyrimo dalyvių vertinimu, jiems būdingas žemas mokymosi motyvacijos lygis studijuojant aukštojoje mokykloje. Pastarieji rezultatai patvirtina mokslinėje literatūroje akcentuojamą Z kartos studentų mokymosi motyvacijos užtikrinimo svarbą atsižvelgiant į šiai kartai būdingas esmines charakteristikas.

Z kartos mokymosi motyvaciją aukštojoje mokykloje lemiantys veiksniai: studentų vertinimas. Gilinantis į ugdymo proceso organizavimo ypatumus ir jų svarbą asmens mokymosi motyvacijai, mokslinėje literatūroje bene dažniausiai akcentuojama išorinė aplinka, kuomet joje sukurtos mokymuisi sąlygos ne tik veikia asmenybę, formuoja jos patirtį, tačiau gali turėti įtakos ir asmeninei studijuojančiojo motyvacijai. Remiantis anksčiau išsakytu faktu, šiame tyrime, siekiant ištirti Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje lemiančius veiksnius, apimti šį reiškinį atspindintys indikatoriai, tokie kaip: studijų proceso organizavimas, studijų turinys, orientuotas į profesinį rengimą, studijų aplinka ir studijoms reikiamos įrangos bei priemonių užtikrinimas, o taip pat dėstytojų profesionalumas bei individualūs jų gebėjimai perteikiant žinias studentams, santykių su bendrakursiais ir dėstytojais kokybė ir kt.

Atlikus duomenų analizę bendroje imtyje, tyrimo rezultatai parodė (žr. 2 pav.), kad Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje labiausiai lemia tokie veiksniai, kaip *kompetentingi dėstytojai, savo srities specialistai* (M=4.42), *geri dėstytojų ir studentų tarpusavio santykiai, grįsti bendradarbiavimu* (M=4.39) bei *įkvepiantys dėstytojai* (M=4.37). Taigi, remiantis rezultatais, matyti, kad Z kartos tyrime dalyvavę studentai mokymosi motyvaciją sieja su dėstytojais, jų kompetencijomis ir profesionalumu savo srityje bei asmenybės ypatumais, gebėjimu įkvėpti studentus domėtis mokomaisiais dalykais. Kita vertus, dėstytojo bendravimas bei gerų

ryšių, grįstų bendradarbiavimu, su studentais palaikymas yra įvardijamas kaip vienas iš Z kartos studentų mokymosi motyvaciją lemiančių veiksnių. Taip pat *lankstus paskaitų lankymo tvarkaraštis* (M=4.36) bei *pasiekimai moksle ir geri studijų rezultatai* (M=4.35) yra įvardijami kaip vieni iš veiksnių, lemiančių tyrimo dalyvių mokymosi motyvaciją aukštojoje mokykloje. Kaip parodė tyrimo rezultatai, mažiausiai Z kartos studentų mokymosi motyvacija aukštojo mokslo studijose siejama su *teigiamais santykiais su kurso draugais* (M=3.92).



2 pav. Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje lemiančių veiksnių vertinimas (n=309; Max=5)

Pastaba:

1. Geri dėstytojų ir studentų tarpusavio santykiai, grįsti bendradarbiavimu
2. Kompetentingi dėstytojai, savo srities specialistai
3. Įkvepiantys dėstytojai
4. Pasiekimai moksle, geri studijų rezultatai
5. Užtikrinamas grįžtamasis ryšys apie studijų rezultatus
6. Įdomiai organizuojamos paskaitos
7. Naudingos disciplinos
8. Galimybė teorines žinias taikyti praktiškai
9. Teigiami santykiai su kurso draugais
10. Lankstus paskaitų lankymo tvarkaraštis
11. Sudarytos galimybės derinti studijas su darbu
12. Suprantamai ir aiškiai išdėstoma mokomoji medžiaga
13. Objektyviai įvertinamos Jūsų žinios

Apibendrinus galima teigti, kad dėstytojų profesionalumas vedant paskaitas bei gebėjimas įkvėpti studentus dėstomais dalykais, o taip pat geri ir bendradarbiavimu grįsti tarpusavio santykiai tarp dėstytojų ir studentų, lankstus paskaitų lankymo tvarkaraštis bei pasiekimai studijų procese demonstruojant aukštus rezultatus yra vieni iš Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje lemiančių veiksnių. Tad akivaizdu, jog siekiant užsitikrinti kuo geresnę Z kartos studentų mokymosi motyvaciją, svarbiu aspektu organizuojant studijų procesą tampa naujų įpročių formavimas, kuomet jaunuolių ruošimas profesinei veiklai jau neapsiriboja vien tik žinių perteikimu ir įgūdžių formavimu; kur kas svarbiau tampa tiek kompetentingi dėstytojai, tiek jų ir studentų tarpusavio santykiai bei jų kokybė, grindžiama bendravimu ir bendradarbiavimu, o taip pat sudarytos galimybės lanksčiai dalyvauti paskaitose atsižvelgiant į individualius studijuojančiųjų poreikius bei sudarytos galimybės studijuojant patirti sėkmę.

Tiriant mokymosi motyvaciją aukštojoje mokykloje lemiančių veiksnių vertinimo išreikštumą skirtingo kurso Z kartos tyrimo dalyvių grupėse, statistinės analizės rezultatai parodė (žr. 1 lentelę), kad tik trys (iš esamų trylikos) mokymosi motyvaciją aukštojoje mokykloje lemiantys veiksniai yra susiję su kursu. Atlikus duomenų analizę paaiškėjo, kad *geri dėstytojų ir studentų tarpusavio santykiai, grįsti bendradarbiavimu*, kaip mokymosi motyvaciją didinantis

veiksnys yra reikšmingai susijęs su tiriamųjų kursu (F=2.936 p=0.034). Vadinasi, *bendradarbiavimu grindžiami tarpusavio santykiai tarp dėstytojų ir studentų* yra vienas iš pirmo kurso studentų (M=4.49, SD=0.79) mokymosi motyvaciją lemiančių veiksnių, nei šis motyvas įvardintas antro (M=4.36, SD=0.91) ir trečio (M=4.21, SD=0.93) kursų studentų grupėse. Taip pat pirmo kurso studentų grupėje nustatytas statistiškai reikšmingai aukštesnis įverčių vidurkis (F=3.591 p=0.014) leidžia manyti, kad pastariesiems studijų procese *užtikrinamas grįžtamasis ryšys apie studijų rezultatus* (M=4.45, SD=0.78) yra labiau išreikštas mokymosi motyvas, nei antro ir trečio kursų studentams, kurių grupėse nustatyti žemesni įverčių vidurkiai (žr. 1 lentelę). Remiantis tuo, akivaizdu, kad dėstytojų grįžtamojo ryšio studentams (ypač pirmo kurso) realizavimas gali būti kaip sėkmės raktas didinant pastarųjų mokymosi motyvaciją ir aktyvų įsitraukimą į studijų procesą. Be to, taikant dispersinę analizę (ANOVA), nustatyta, kad *naudingos disciplinos*, kaip mokymosi motyvaciją lemiantis veiksnys, yra reikšmingai susijęs (F=2.948 p=0.033) su tiriamųjų kursu. Remiantis tyrimo rezultatais, matyti, kad pirmakursiai aukštesniu įverčių vidurkiu įvertino *naudingas disciplinas* (M=4.1, SD=0.93), kaip vieną iš mokymosi motyvaciją lemiančių veiksnių, lyginant su vyresnių – antro (M=3.97, SD=1.07) ir trečio (M=3.79, SD=1.2) kursų studentų grupėse gautais duomenimis. Pastarasis rezultatas leidžia manyti, kad nuo pirmo kurso studentams, rengiantis profesinei veiklai, studijų procese ypatingai svarbu išlaikyti praktinių įgūdžių formavimo(si) kryptį, kad studentai suvoktų studijų naudingumą. Todėl didinant studijuojančiųjų mokymosi motyvaciją, jau nuo pirmo kurso būtina studijas labiau orientuoti į praktinių įgūdžių formavimą(si), skatinti įžvelgti įgytų žinių pritaikymo galimybes praktinėse situacijose.

Atlikus įverčių palyginamąją analizę skirtingo kurso tyrimo dalyvių grupėse, paaiškėjo, kad *kompetentingi dėstytojai, savo srities specialistai* (F=2.044 p=0.108) ir *įkvepiantys dėstytojai* (F=0.796 p=0.497), o taip pat *teigiami santykiai su kurso draugais* (F=1.523, p=0.209), kaip mokymosi motyvaciją lemiantys veiksniai Z kartos studentų vertinami panašiu lygiu nepriklausomai nuo kurso. Kita vertus, taikant dispersinę analizę (ANOVA) paaiškėjo, kad tyrimo dalyvių mokymosi motyvaciją lemiančių veiksnių, tokių, kaip: *įdomiai organizuojamos paskaitos* (F=1.047, p=0.372), *suprantamai ir aiškiai išdėstoma mokomoji medžiaga* (F=0.964, p=0.41), *galimybė teorines žinias taikyti praktiškai* (F=1.764, p=0.154) bei *objektyviai įvertinamos žinios* (F=1.26, p=0.288), o taip pat *pasiekimai moksle, geri studijų rezultatai* (F=2.199, p=0.088), *sudarytos galimybės derinti studijas su darbu* (F=2.013, p=0.112) ir *lankstus paskaitų lankymo tvarkaraštis* (F=2.133, p=0.096) statistiškai reikšmingai nesusiję su kursu ir šių veiksnių vertinimo raiška visų kursų Z kartos studentams būdinga panašiu lygiu ir tik nežymiai skiriasi (žr. 1 lentelę).

1 lentelė

Mokymosi motyvaciją studijuojant aukštojoje mokykloje lemiančių veiksnių vertinimo įverčių vidurkiai, standartiniai nuokrypiai (skliaustuose) (n=309; Max=5) ir dispersinės analizės rezultatai (kai p<0.05) skirtingo kurso Z kartos studentų grupėse

Mokymosi motyvaciją aukštojoje mokykloje lemiantys veiksniai	1 kursas (n=138)	2 kursas (n=75)	3 kursas (n=90)	4 kursas (n=6)*	III tipo kvadratų suma	Laisvės laipsnis (df)	Kvadratų vidurkis	F	p
Geri dėstytojų ir studentų tarpusavio santykiai, grįsti bendradarbiavimu	4,49 (0.79)	4,36 (0.91)	4,21 (0.93)	5.0 (0.01)	6.432	3	2.144	2.936	**0.034**

Kompetentingi dėstytojai, savo srities specialistai	4,51 (0.8)	4,33 (0.99)	4,3 (1.02)	5.0 (0.01)	5.108	3	1.703	2.044	0.108
Įkvepiantys dėstytojai	4,41 (0.92)	4,37 (1.01)	4,27 (1.15)	4.83 (0.41)	2.421	3	0.807	0.796	0.497
Pasiekimai moksle, geri studijų rezultatai	4,45 (0.8)	4,24 (1.05)	4,24 (1.05)	5.0 (0.01)	5.805	3	1.935	2.199	0.088
Užtikrinamas grįžtamasis ryšys apie studijų rezultatus	4,45 (0.78)	4,11 (1.18)	4,13 (1.03)	4.83 (0.41)	9.980	3	3.327	3.591	**0.014**
Įdomiai organizuojamos paskaitos	4,29 (1.0)	4,35 (1.08)	4,23 (1.15)	5.0 (0.01)	3.517	3	1.172	1.047	0.372
Naudingos disciplinos	4,1 (0.93)	3,97 (1.07)	3,79 (1.2)	4.83 (0.41)	9.638	3	3.213	2.948	**0.033**
Galimybė teorines žinias taikyti praktiškai	4,41 (0.81)	4,24 (1.04)	4,11 (1.13)	4.17 (0.75)	4.941	3	1.647	1.764	0.154
Teigiami santykiai su kurso draugais	4,06 (1.05)	3,73 (1.17)	3,86 (1.16)	4.0 (1.1)	5.652	3	1.884	1.523	0.209
Lankstus paskaitų lankymo tvarkaraštis	4,41 (0.99)	4,49 (0.95)	4,16 (1.15)	4.83 (0.41)	6.727	3	2.242	2.133	0.096
Sudarytos galimybės derinti studijas su darbu	4,27 (1.03)	4,29 (1.17)	4,02 (1.31)	5.0 (0.01)	7.891	3	2.630	2.013	0.112
Suprantamai ir aiškiai išdėstoma mokomoji medžiaga	4,3 (0.92)	4,27 (1.02)	4,17 (1.15)	4.83 (0.41)	2.948	3	0.983	0.964	0.41
Objektyviai įvertinamos Jūsų žinios	4,31 (0.84)	4,31 (0.82)	4,17 (1.1)	4.83 (0.41)	3.183	3	1.061	1.26	0.288

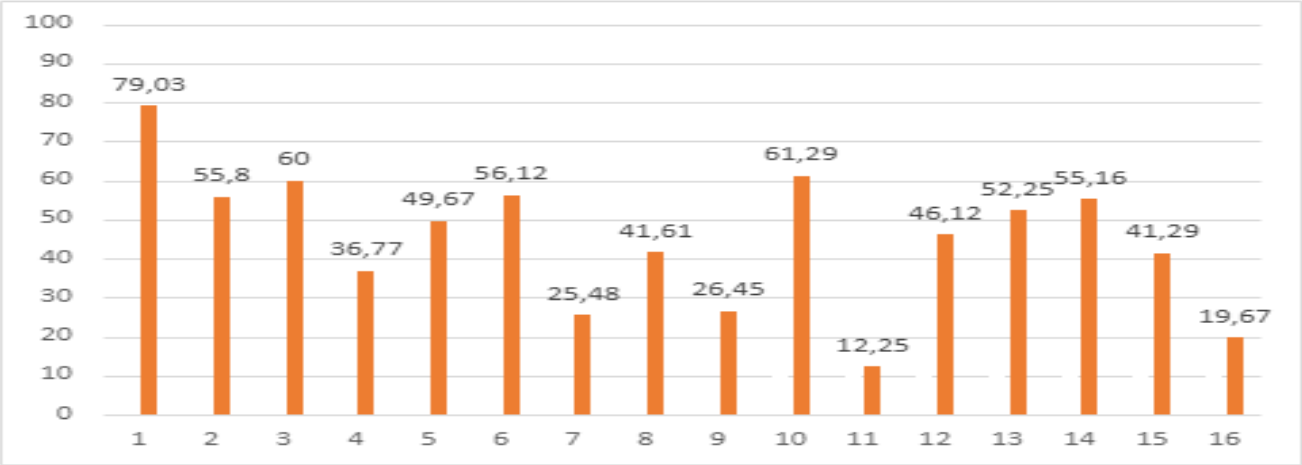
Pastaba: * į duomenų analizę neįtraukta dėl mažo respondentų skaičiaus

Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo galimybės. Mokymosi motyvacija yra vienas iš pagrindinių veiksnių, padėsiančių ruoštis sėkmingai profesinei veiklai. Motyvuotas mokytis studentas, įvertinęs studijų naudą, tikėtina, aktyviau įsitrauks į studijų procesą, sėkmingiau sieks užsibrėžtų tikslų, aktualizuos įgūdžius, žinias bei juos plėtos ir pritaikys ateityje profesinėje veikloje. Analizuojant Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje ypatumus, svarbu ne tik atskleisti esamą situaciją, išsiaiškinti mokymosi motyvaciją lemiančius veiksnius, bet ir ieškoti sprendimo būdų nagrinėjant Z kartos studentų mokymosi motyvacijos užtikrinimo galimybes.

Tyrimo rezultatai parodė (žr. 3 pav.), kad daugiau nei dviejų trečdalių tyrimo dalyvių vertinimu, *patraukliai ir įdomiai organizuojamos paskaitos, naudojant įvairias šiuolaikines mokymosi technologijas ir mokymo metodus* (79.03 proc.) yra vienas iš būdų siekiant užtikrinti didesnę Z kartos studentų mokymosi motyvaciją. Taip pat dviejų trečdalių tyrime dalyvavusių studentų teigimu, *studijų turinys, atitinkantis šiuolaikinės darbo rinkos poreikius* (61.29 proc.) padidintų Z kartos studentų mokymosi motyvaciją. Taigi, įvertinus tai, kad rengiantis profesinei veiklai teorijos ir praktikos sąsajos yra vienas iš klasikinių kokybiško studijų proceso aspektų ir

yra vienas iš studijuojančiųjų mokymosi motyvaciją lemiančių veiksnių, svarbu perteikti ne tik teorines žinias, tačiau, atliepiant Z kartos studentų lūkesčius, studijų procese sudaryti galimybes vertingai patirčiai įgyti, tobulinti praktinius įgūdžius bei juos pritaikyti profesinėje veikloje ateityje. Kita vertus, didžioji dauguma tyrimo dalyvių Z kartos studentų mokymosi motyvacijos didinimo galimybes sieja su *geru, bendradarbiavimu grįstu studentų ir dėstytojų komunikavimu* (60 proc.) bei *organizuojamomis kviestinių svečių (pvz., iš verslo pasaulio) paskaitomis* (56.12 proc.). Be to, nagrinėjant Z kartos studentų mokymosi motyvacijos didinimo galimybes, tyrimo dalyviai atkreipė dėmesį į atsiskaitymų vykdymo aspektą. Tyrimo dalyvių vertinimu, *aiškiai pateikti nurodymai ir terminai užduotims atlikti* (52.25 proc.) ir *lankstesnis atsiskaitymų organizavimas, kuomet būtų atsižvelgiama nustatant atsiskaitymų terminus į studentų studijų krūvį, užtikrinant atsiskaitymų metu akademinę etiką* (55.16 proc.) gali būti vieni iš Z kartos studentų mokymosi motyvacijos užtikrinimo būdų. Pastarieji rezultatai leidžia manyti, kad dirbant su Z kartos studentais, ypatingas dėmesys turi būti skiriamas atsiskaitymų už atliktas užduotis sistemos gerinimo bei atsiskaitymų metu akademinės etikos užtikrinimo būdų paieškai. Taip pat svarbiu aspektu tampa lankstesnis atsiskaitymų organizavimas atsižvelgiant į individualius studijuojančiųjų poreikius bei aiškių nurodymų ir terminų užduotims atlikti pateikimas.

Remiantis gautais rezultatais, pažymėtina, kad *studijos, labiau orientuotos į teorinių žinių perteikimą* (12.25 proc.), *studentų įtraukimas dalyvauti popaskaitinėje veikloje (pvz., renginius ir pan.)* (19.67 proc.), o taip pat *tinkamos studijoms sukurtos mokymosi aplinkos kūrimas didinant poilsio zonų, suolelių koridoriuose / lauke skaičių ir pan.* (25.48 proc.) bei *studijoms skirtos materialinės bazės gerinimas (praktiniams užsiėmimams skirta įranga, mokomoji literatūra, moksliniai žurnalai ir pan.)* (26.45 proc.), studentų įsitikinimu, turėtų mažiausią įtaką siekiant užtikrinti didesnę Z kartos studentų mokymosi motyvaciją.



3 pav. Z kartos studentų mokymosi motyvaciją užtikrinančių veiksnių vertinimas (proc., n=309)

Pastaba:

1. Patraukliai ir įdomiai organizuojamos paskaitos panaudojant įvairias šiuolaikines mokymo technologijas ir mokymo metodus
2. Paskaitos, labiau orientuotos į praktinių įgūdžių bei gebėjimų formavimą
3. Geras, bendradarbiavimu grįstas studentų ir dėstytojų komunikavimas
9. Studijoms skirtos materialinės bazės gerinimas (praktiniams užsiėmimams skirta įranga, mokomoji literatūra, moksliniai žurnalai ir pan.)
10. Studijų turinys, atitinkantis šiuolaikinės darbo rinkos poreikius
11. Studijos, labiau orientuotos į teorinių žinių perteikimą

4. Studentus skatinimas aktyviai dalyvauti paskaitose, diskutuoti, reikšti savo nuomonę, įtraukti į nagrinėtų temų aptarimą	12. Užduotys, orientuotos į praktinių įgūdžių formavimą (pvz., daugiau praktinių užduočių)
5. Studijų metu organizuojamos paskaitas už aukštosios mokyklos ribų (pvz., verslo įmonėse ar pan.)	13. Aiškūs nurodymai ir terminai užduotims atlikti
6. Organizuojamos kviestinių svečių (pvz., iš verslo pasaulio) paskaitos	14. Atsiskaitymų organizavimas (pvz., atsiskaitymų terminų nustatymas atsižvelgiant į studentų studijų krūvį, akademinės etikos užtikrinimas atsiskaitymų metu ir kt.)
7. Tinkamos, studijoms skirtos mokymosi aplinkos kūrimas (daugiau poilsio zonų, suolelių koridoriuose / lauke ir pan.)	15. Studijų rezultatų vertinimas (pvz., įvertinimų aptarimas su studentais ir kt.)
8. Ryšių su studentais palaikymo kokybės užtikrinimas (pvz. komunikacijos platformų tobulinimas, individualios konsultacijos, grįžtamojo ryšio apie atliktas užduotis užtikrinimas ir kt.)	16. Studentų įsitraukimas dalyvauti popaskaitinėje veikloje (renginiuose, grupėse ir pan.);

Apibendrinus teigtina, kad studentų mokymosi motyvaciją didintų įdomiai vedamos paskaitos panaudojant šiuolaikines mokymo technologijas ir mokymo metodus. Galima pastebėti, kad čia išryškėja Z kartos požymis, jog visgi jie – išmanioji karta, kuriai mokymosi procese yra itin svarbu pritaikyti šiuolaikines technologijas bei naujausią programinę įrangą, kuriuos taikant, tikėtina, didėtų studijuojančiųjų susidomėjimas dėstomais dalykais, įsitraukimas į studijų procesą, aktyvus dalyvavimas jame bei studentų dėmesio išlaikymas. Taigi, siekiant užtikrinti Z kartos studentų mokymosi motyvaciją, būtina studijų procese išnaudoti tiek šiuolaikinių technologijų galimybes, tiek taikyti aktyviuosius mokymo(si) metodus apimant daugybę įtraukiančių veiklų, tokių kaip: dalyvavimas diskusijose, vaizdo įrašų žiūrėjimas ir nagrinėjimas, probleminio mąstymo skatinimas ir kt. Taip pat tyrimo dalyviai Z kartos studentų mokymosi motyvacijos užtikrinimo galimybes sieja su dalyko medžiagos turinio pritaikymu šiandienos darbo rinkos poreikiams bei skiriamu didesniu dėmesiu praktinių įgūdžių formavimui(si), o taip pat atsiskaitymų organizavimo aspektu išskiriant aiškių nurodymų ir terminų užduotims atlikti bei lankstaus atsiskaitymų organizavimo svarbą. Be to, respondentų įsitikinimu, bendradarbiavimu grįstas studentų ir dėstytojų komunikavimas ir jo kokybės užtikrinimas gali būti kaip vienas iš Z kartos studentų mokymosi motyvacijos užtikrinimo būdų.

IŠVADOS

1. Teorinė mokslinės literatūros analizė parodė, kad ugdymo proceso dalyvių tarpusavio santykių kokybė, taikomos šiuolaikinės technologijos bei naujausia programinė įranga, nuolat atnaujinamas mokomosios medžiagos turinys, orientuotas į šiandieninės darbo rinkos poreikius, taikomi inovatyvūs mokymo ir mokymosi metodai, o taip pat skaitmeninių technologių integravimas į studijų procesą bei praktinis teorinių žinių pritaikomumas yra vienos iš Z kartos studentų mokymosi motyvacijos užtikrinimo prielaidų.
2. Tyrimo rezultatai parodė, kad nepaisant to, jog daugiau nei du trečdaliai (70.2 proc.) Z kartos studentų savo mokymosi motyvaciją aukštojoje mokykloje įvertino pakankamai aukštais ir aukščiausiais įverčiais (nuo 6 iki 10 balų), vis dėlto beveik trečdalis (29.8 proc.) tiriamųjų pasižymi žemu mokymosi motyvacijos, įvertintos nuo 1 iki 5 balų, lygiu.
3. Tyrimo dalyvių bendroje imtyje vertinimu, kompetentingi bei įkvepiantys dėstytojai, savo srities specialistai, o taip pat geri dėstytojų ir studentų tarpusavio santykiai, grįsti bendradarbiavimu yra vieni iš Z kartos studentų mokymosi motyvaciją studijuojant aukštojoje

mokykloje lemiančių veiksnių. Taip pat lankstus paskaitų lankymo tvarkaraštis bei pasiekimai moksle ir geri studijų rezultatai įvardinti kaip vieni iš veiksnių, sąlygojančių Z kartos studentų mokymosi motyvaciją aukštojoje mokykloje, o teigiami santykiai su kurso draugais mažiausiai siejami su šios kartos studentų mokymosi motyvacija.

4. Tyrimo metu paaiškėjo, kad geri dėstytojų ir studentų tarpusavio santykiai, grįsti bendradarbiavimu, užtikrinamas grįžtamasis ryšys apie studijų rezultatus bei naudingos disciplinos, kaip mokymosi motyvaciją lemiantys veiksniai studijuojant aukštojoje mokykloje, stipriau išreikšti pirmo kurso Z kartos studentams, nei antro ir trečio kursų studentams, kurių grupėse nustatyti žemesni įverčių vidurkiai. Tuo tarpu tokių mokymosi motyvaciją lemiančių veiksnių, kaip kompetentingi ir įkvepiantys dėstytojai, teigiami santykiai su kurso draugais bei įdomiai organizuojamos paskaitos, suprantamai ir aiškiai išdėstoma mokomoji medžiaga, galimybė teorines žinias taikyti praktiškai ir objektyviai įvertinamos žinios, o taip pat pasiekimai moksle, geri studijų rezultatai, sudarytos galimybės derinti studijas su darbu ir lankstus paskaitų lankymo tvarkaraštis, vertinamo raiška visų kursų Z kartos studentams būdinga panašiu lygiu ir reikšmingai nesiskyrė.
5. Apklausos duomenys bendroje imtyje parodė, kad patraukliai ir įdomiai organizuojamos paskaitos, naudojant įvairias šiuolaikines mokymosi technologijas ir mokymo metodus, o taip pat studijų turinys, atitinkantis šiuolaikinės darbo rinkos poreikius bei bendradarbiavimu grįstas studentų ir dėstytojų komunikavimas yra vieni iš Z kartos studentų mokymosi motyvacijos užtikrinimo būdų. Taip pat Z kartos studentų mokymosi motyvacijos aukštojoje mokykloje užtikrinimo galimybės siejamos su organizuojamomis kviestinių svečių (pvz., iš verslo pasaulio) paskaitomis, aiškiai pateiktais nurodymais ir terminais užduotims atlikti ir lankstesniu atsiskaitymų organizavimu.

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THE PERCEPTIONS OF COLLEGE TEACHING STAFF ON THE FACTORS INFLUENCING THE ARTIFICIAL INTELLIGENCE TECHNOLOGY ACCEPTANCE IN ACADEMIC PRACTICE

DIRBTINIO INTELEKTO TECHNOLOGIJŲ PASIRINKIMO AKADEMINĖJE PRAKTIKOJE VEIKSNIAI: KOLEGIJOS DĖSTYTOJŲ ĮŽVALGOS

JURATE SEREIKIENE
SMK College of Applied Sciences, Lithuania

Abstract: Higher education institutions like many knowledge-based organizations face challenges as generative AI and related technology change current ways of working, learning and developing professionally. The rising opportunities for using chatbots for learning and teaching shifted the attitude of students and faculty members to introduce AI tools to their academic work or studies. This study aims to uncover the perceptions of college academic personnel on the factors that drive and influence the diffusion of artificial technologies at their work.

The classical theories related to an extended technology acceptance model are utilized to hold conceptual background, examining the sets of antecedents impacting the determinants of perceived usefulness and introducing the participants' attitude to their perceived ease of use of AI technology. Through semi-structured interviews, qualitative research is conducted to gather data from the college teaching staff.

The results present the significant role of perceived usefulness when the attitudes on the factors affecting the usage are explored. The factors impacting the perceived intentions are double-sided despite the further AI adoption behaviour envisaged. The findings suggest the concern of the older participants' self-perception toward AI usage. The original attitudes of the academics at college serve as the new focus for further scholarly investigations.

Keywords: Artificial Intelligence; Technology Acceptance, Teaching Staff, Academic Practice.

INTRODUCTION

Research topicality and problem. Artificial intelligence (AI) technologies are pervasively entering our professional and personal lives. According to Bloomberg Professional Services (2024), the term artificial intelligence at a high level refers to technology that models human intelligence and can perform a range of tasks that might otherwise have required people to handle. Artificial intelligence is as revolutionary as mobile phones and the Internet, and we are only at the beginning of what AI can accomplish (Gates, 2023). Technology companies are racing to develop ever more sophisticated AI products that can talk back to users, solve complex math problems, produce short films and perhaps one day outperform a human in various tasks (Bloomberg Professional Services, 2024). Generative AI technologies acting as Large Language Machines (LLM) can enable capabilities across a broad range of content, including images, video, audio, and computer code, so they can perform several functions in organisations, including classifying, editing, summarising, answering questions, and drafting new content, changing how work gets done at the activity level across business functions and workflows (Chui, 2023). Contradicting the previous insights into machine intelligence's role in replacing lower skills and cognitive abilities, AI technology performs higher-level functions for solving creativity, reasoning, problem-solving and other tasks, requiring advanced cognitive ability (Waring et al., 2024).

Artificial intelligence-powered tools hold the potential to alter many sectors, and education isn't an exception. The landscape of education is experiencing a significant transformation with the rise of artificial intelligence and this metamorphosis is expected to have a systematic impact on various aspects of education, including educational objectives, processes, learning materials

and methods, assessment and evaluation, and ultimately, learning outcomes (Banerjee, 2023). In academic settings, a Chat GPT chatbot, an extremely popular product of OpenAI.com, holds significant promise in enhancing students' learning effectiveness, promoting wider access to educational resources, and strengthening the monitoring of education standards (Banerjee, 2023). The rising opportunities for using chatbots for learning and teaching shifted the attitude of students and faculty members to introduce AI tools to their academic work or studies. AlAfnan et al. (2023) present the potential of Chat GPT for students to seek answers to theory-based questions and generate ideas for application-based questions, to provide a platform for instructors to integrate technology in classrooms, and to conduct workshops to discuss and evaluate generated responses.

The integration of AI, particularly Chat GPT in education brought obvious advantages like speed, and succinctness (Zhao et al., 2024), personalised education experience (Xiao & Zhi, 2023) and other unveiled benefits, at the same time questing to deal with weaknesses like the lack of accuracy and relevance (AlAfnan et al., 2023), the lack of students' critical thinking about scientific information presented in Chat GPT (Archila et al., 2024), and ending with issues with sustainability, privacy, digital divide, and ethics (Khowaja et al., 2024) and more others.

Higher education institutions as many other knowledge-based organisations are facing a challenging time as generative AI and related technology open up new possibilities, which according to Brown (2023), dramatically disrupt current ways of working, learning and developing professionally. Between many studies on the best practices and potential impact on higher education of recent technological developments, a great deal of ambiguity is mentioned, stating that educators, and management, must stay abreast of developments and continue to commit to ongoing research and discourse regarding responses to AI (Lee, et al., 2024).

The explanation and prediction of information technology use have been investigated by Davis (1989), based on two theoretical constructs, perceived usefulness and perceived ease of use, as fundamental determinants of any technological system use. The Technology Acceptance Model (TAM) claims that a generic attitude doesn't shape the behavioural intention of technology utilisation, but specific beliefs are related to it (Davis, 1989). The acceptance of artificial intelligence technologies as modern information technologies is in the field of further investigation. The group of researchers explored the acceptance of Chat GPT among students in their study by incorporating trust as a moderator in an extended version of TAM (Foroughi et al., 2024). When a focus is set on long-term AI acceptance, the static models of technology acceptance are challenged by user experiences and perceptions which change over time (Ng, 2024). Following the data from the research on the perceptions within academic staff on generated AI usage, there is no homogenous sentiment around artificial intelligence in higher education (Lee, et al., 2024).

The evidence of the dramatic growth of artificial intelligence technologies in higher education draws an interest in obtaining confirmed information, minimising the uncertainty of the diffusion of the innovation process. Keeping in mind the colleges' promises to serve the students and prepare them for industry, the perceptions of academic personnel regarding AI usage behaviour and the factors that shape their AI technology usage intentions are critical.

In trying to identify the perceptions of college faculty members on the factors impacting their AI technology usage behaviour and intentions, there is a need to elucidate the changing agents of behaviour, influencing innovation decisions in a direction deemed to be desirable (Rogers, 1983). The problem is the insufficient description of the factors of the new technology acceptance, in specific academic settings, despite the previous research. Understanding the utilisation of new technology isn't shaped by a generic attitude, but there are specific beliefs related to it (Davis,1989), there is a need to unveil the attitude of teaching staff at college, the influencing

factors and attitudes toward acceptance of artificial intelligence at their work. This raises the main research questions formulated in the study: How do teaching staff in the college describe their experience with AI technology at work? What are the main factors shaping the perceptions of AI technology usage behaviour? What are their attitudes toward the future usage of AI technology?

The knowledge gap leads to the need to define the insights on questions mentioned above through empirical research.

The aim of the research. Based on the technology acceptance theoretical model, the present study seeks to describe the characteristics of the factors impacting the perceived usefulness and ease of use of AI technology by academic personnel of college forming the behavioural intentions and behaviour patterns for AI usage in educational and scholarly practice. To achieve the aim, the following research tasks are settled:

- To describe the perceived usage behaviour of teaching personnel at college in adopting artificial intelligence technology in educational and scholarly work;
- To characterise the factors influencing the perceived usefulness and ease of use of AI technology by the teaching staff;
- To identify the attitudes of the college faculty members toward AI usage intentions in academic settings.

The research methodology. While the theoretical part of the research provides the basic theories of innovative technology acceptance constraints and results from the previous studies, the empirical part exploits the advances of qualitative research by conducting eighteen equal parts written and face-to-face in-depth interviews. The sample includes local and international lecturers and scholars from the college interested in business-related scientific areas. A semi-structured open-ended interview guide is employed to generate the in-depth attitudes of the participants. The internal and external factors affecting the intentions and actual behaviour in adopting artificial intelligence tools are at the centre of the research. A phenomenological approach is applied to the data interpretation and inductive thematic analysis is carried out to explain the insights received from the informants.

The research results. The study results present the active embracement of artificial intelligence tools at academic work and the main factors influencing the double-sided attitudes to innovation at their workplace. The analysed data ensures that trust and reliability of information are critical factors in evaluating the output quality to be characterised as job-related, which is directly linked to the perceived usefulness of AI technology usage. The factors affecting the perceptions of the ease of AI use ascertain self-efficacy and facilitating conditions to be advanced for admitting the greater usefulness of AI adoption. The role of social factors is important for many participants, while some express negative concerns regarding self-esteem in front of artificial intelligence. The intentions to use the new technology are perceived as non-discussible, though the insights on the actual behaviour are diverse.

Originality of the article. This research added to previous studies of artificial intelligence technologies adoption in academic settings by qualitative exploration of the insights reasoning the diffusion of innovative technology in the academy. Besides various behavioural and technological factors presenting as the constructs of perceived usefulness and perceived ease of use defining the perceived intentions, the original attitudes of the academics at college serve as the new scope for further scholarly investigations. This research presents the importance of a deeper examination of social factors and psychological affection to the differences in age, status, and personality types.

THEORY ANALYSIS

Generative AI technology provides the human race with unprecedented power, so this will require teaching people to make good decisions to be able to critically evaluate and judge what is reliable information and what is not, highlighting the need for universities or colleges to equip students with a set of AI competencies, and even more significant need is for educators to teach students how to ethically make the greatest use of these tools (Waring, 2024).

Reviewing the challenges in generative AI usage experience, Baidoo-Anu & Owusu Ansah (2023) demonstrate a generated list of benefits of Chat GPT and related generative AI in advancing teaching, the results of a query of Chat GPT indicated personalised tutoring, automated essay grading, language translation, interactive learning, adaptive learning. The drawbacks of incorporating Chat GPT and related generative AI in education, are derived as a lack of human interaction, limited understanding, bias in training data, lack of creativity, dependency on data, lack of contextual understanding, limited ability to personalise institution, and privacy are indicated (Baidoo-Anu, & Owusu Ansah, 2023). For benefits for students, influencing the usage of Chat GPT for their studies involves the ability to get simple results as many times as wished by the user, and an easy platform to prepare students for submissions and examine different examples (AlAfnan, et.al, 2023). For instructors, Chat GPT may provide an opportunity to integrate technology in classrooms and provide students with examples to discuss and evaluate as part of workshops (AlAfnan, et.al, 2023). Among the challenges for students, that may reduce their interest in class, is a temptation to use Chat GPT to generate assignment submissions, which would neither help them learn nor develop academically and professionally, like instructors, on the other hand, might find themselves grading robotically generated submissions (AlAfnan, et.al, 2023). Besides all these challenges and benefits that influence the usage behaviour of generated artificial intelligence tools in the academic field, more factors are forming the attitude, intentions and behaviour towards new technology.

Many theoretical models explain human behaviour in a social context. One of the classical theories is the Diffusion of Innovation Theory from Everett M. Rogers (1983), which encompasses the acceptance of innovations, the factors that influence them, and the adoption behaviours of different groups, examine the evolutionary process of the diffusion of new ideas, things, and technologies through the social system (Jiang et al., 2024). An innovation presents an individual or organisation with a new alternative or new means of solving problems, whether new alternatives are superior is not precisely known by problem solvers (Rogers, 1983).

Another influential approach to the decision-making process of humans has been developed by Ajzen in collaboration with Fishbein through a Theory of Reasoned Action (TRA), determining the differences between intentions and behaviour, pointing out the intention as the most accurate predictor of possible behaviour (Fishbein &Ajzen, 1975). Behaviour is performed not automatically or mindlessly but follows reasonably and consistently from the behaviour-relevant information available (Ajzen, 1991).

Within this theory of reasoned action, behavioural intentions are determined by attitudes- overall positive or negative evaluations of behaviour- and the perceived social pressure, named social norms (Armitage &Christian, 2004). The Theory of Planned Behaviour (TPB) as an extension of the theory of reasoned action proposed by Ajzen in 1988 explains the relationship between consumers' beliefs, attitudes, intentions, and behaviours, and is widely used in social sciences. The author presents the conceptual model with an additional inclusion of perceived behavioural control to the previous scheme as a third determinant of intention. Perceived

behavioural control acts as a measure of actual control and confidence in one's ability (Armitage &Christian, 2004).

The generic nature of the Theory of Reasoned Action, predicting the attitudinal underpinnings of behaviours across various areas, did not measure variables specific to technology use (Marikyan & Papagiannidis, 2023). Employing the empirical insights from users on information system performance, Davis (1989) developed the Technology Acceptance Model (TAM). Exploring the attitudes and behaviours of individuals, Davis (1989) focused on two theoretical constructs, perceived usefulness and perceived ease of use, which were analysed by expectancy theory, self-efficacy theory, behavioural decision theory, diffusion of innovations, marketing, and human-computer interaction, regarding why usefulness and ease of use to be fundamental determinants of system use (Davis, 1989). According to the author, people tend to use or not use an application to the extent they believe it will help them perform their job better, referring to it as perceived usefulness. Perceived ease of use, in contrast, refers to "the degree to which a person believes that using a particular system would be free of effort." A third version of the Technology Acceptance Model (TAM3) is the extended theoretical framework, which postulates that actual behaviour is predicted by behavioural intention, and behavioural intention is underpinned by perceived usefulness and perceived ease of use, each of which has a set of antecedents (Marikyan & Papagiannidis, 2023). The determinants of perceived usefulness are subjective norm, image, job relevance, output quality, and result demonstrability (Venkatesh &Davis, 2000). Both social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, and perceived ease of use) significantly influenced user acceptance (Venkatesh &Davis, 2000). As the new direct predictors of perceived ease of use, Venkatesh and Bala (2008) included computer self-efficacy, perception of external control, computer anxiety, computer playfulness, perceived enjoyment, and objective usability, coming from evidence on human decision-making.

Venkatesh (2000) tested two sets of antecedents of perceived ease of use: anchoring factors, driving the initial judgment, and adjustment factors, coming into play after individuals gain direct experience with systems. The tested model proposes control (internal and external conceptualised as computer self-efficacy and facilitating conditions respectively), intrinsic motivation (conceptualised as computer playfulness), and emotion (conceptualised as computer anxiety) as anchors that determine early perceptions about the ease of use of a new system. With increasing experience, it is expected that system-specific perceived ease of use, while still anchored to the general beliefs regarding computers and computer use, will adjust to reflect objective usability, perceptions of external control specific to the new system environment, and system-specific perceived enjoyment (Venkatesh, 2000).

The effects of perceived usefulness and perceived ease of use on the attitude of students have been explored by Foroughi et al. (2024), defining that system quality has a positive effect on perceived ease of use and perceived usefulness which in turn boosts students' attitudes and intentions to use Chat GPT for learning purposes. The findings of their study revealed that while technical reliability and functionality are critical for perceived ease of use and usefulness, the accuracy and trustworthiness of information provided by Chat GPT are essential for fostering positive user attitudes (Foroughi et al, 2024). This is particularly relevant for users with low trust, where perceived ease of use and usefulness play a more significant role (Foroughi et al, 2024). Some more effects of the antecedents of conversational AI intentions were defined by Ng (2024). According to her study, hedonic motivation increases continued intended use, and social

motivation and perceived ease of use enhance trust, positively affecting the continued actual use of conversational artificial intelligence (Ng, 2024).

The importance of social norms, and ethical behaviour also should be highlighted. The uncertainty of fair usage of AI tools can influence students' and academic' usage behaviour. Nelson et al. (2024) stated that students believe that Chat GPT written works are easily detectable, and that schools and institutions should incorporate plagiarism detectors. The study unveiled different views on dishonesty: some participants thought writing and turning in a paper written by Chat GPT was academic dishonesty, but fewer believed that translating a work written in Spanish and turning it into English was dishonest (Nelson et al., 2024). In their research, Lee et al. (2024) revealed that the greatest concerns among academic staff were around concepts relating to AI's impact on academic integrity.

While various studies have implemented the information collection on students' views on different aspects of artificial intelligence, a few papers were found to survey faculty members of higher education institutions. Lee et al. (2024), after surveying the students and the faculty members, imperatively stated that educators and management, responding to the speedy technological rise must continue to proceed with the research, keeping in mind the university's obligation to serve the students in preparing them for industry (Lee, et al., 2024).

The extended theoretical framework of the Technology Acceptance Model, evolving from the classical theories of Innovation Diffusion, Planned Behaviour, Reasoned Action and others, which ground the factors, attitudes and behaviour of individuals affecting the intentions of innovation technology adoption is exploited for further interest in defining the nature of direct predictors of perceived usefulness and perceived ease of artificial intelligence technology use in academic settings. Following Marikyan and Papagiannidis (2023), awareness of the antecedents of perceived usefulness and perceived ease of use can help managers of higher education institutions make informed decisions about the strategies for technology implementation. Understanding the significance of different antecedents, impacting the determinants of intended and actual usage behaviour of teaching staff, can provide new insights into facilitating AI adoption in academia and future studies.

RESEARCH METHODOLOGY

This research's main constructs of interest are the various perceived characteristics of using an innovation. The study aims to unfold the perceptions of faculty members of higher education institutions of applied sciences in the artificial intelligence usage behaviour, setting up the most influencing determinants of their AI usage intentions.

The third model of Davis's technology acceptance model (TAM3) is utilised to hold to the theoretical conceptual background, determining the set of antecedents impacting the determinants of perceived usefulness: experience, voluntariness, subjective norms, image, job relevance, output quality, and demonstrability of result. Another set of determinants introducing the participants' attitude to their perceived ease of use of AI technology includes the anchoring factors of control, intrinsic motivation and emotions, and adjusting factors of perceived objective usability and system-specific enjoyment. The research aims to capture the factors influencing college teaching staff to practice artificial intelligence tools in academic and educational work at HEI and possible new insights into the impacting roles of determinants of the technology acceptance model. A study has been conducted at the biggest private college in Lithuania delivering the study programs of applied social sciences.

Research methods. The qualitative research was conducted using the in-depth interview method for the research data collection. Semi-structured interviews with faculty members of the college collected empirical data. A questionnaire of five open-ended semi-formulated questions was employed as a research tool to collect the purposive data for the participants.

The research aims to determine: 1) to depict the artificial intelligence technology actual usage behaviour and experience of college teaching staff; 2) to identify the most impacting external factors on AI usage behaviour; 3) to define the factors on academic personnel's perceived usefulness of AI tools at work; 4) to disclose the attitude of faculty members to AI technology system- specific perceived ease of use applied to work; 4) to determine the specific beliefs influencing the intentions of faculty members for artificial intelligence technologies.

Research sample. The research sample consists of college faculty members, working as teaching personnel and researchers. The sampling aims for maximum variation to excavate meaningful perceptions, so the sample includes staff members of local – Lithuanian – nationality and educators from other nationalities. The same purpose of wider attitudes aimed at surveying the participants of a wider age range – they were from 29 to 61. The participants teach the students of international and Lithuanian study programs related to business and deliver a diverse range of courses in business management, marketing, business strategies, business law, quality management, logistics, finance and accounting. All the participants have no IT professional background or specific technological education. Keeping the ethical and data safety requirements, the names of participants are hidden, and the data are coded.

Research data collection and analysis. The interview data were collected from November 10 to December 6, 2024, in Vilnius, Lithuania. The data were collected from eighteen participants in person and written.

There wasn't an estimated number of participants before data retrieval, expecting saturation of data depending on several factors, referred to by Morse (2000), including the quality of data, the scope of the study, the nature of the topic, the amount of useful information obtained, the use of shadowed data, and the qualitative method and study design used. Considering the scope of study to the qualitative evaluation of the limited determinants of TAM, the limited number of interview questions, and enough useful information, the number of eighteen inquiries fully corresponds to the research aim.

A phenomenological approach for data interpretation and evaluation is chosen. The data were analysed by applying the procedures of inductive thematic analysis, framing the thematic categories and capturing the meanings behind the expressions given by the participants. The research data were retrieved through the transcripts and after thoroughly analysed., the participants were allowed to choose their mother language for the interview to receive more susceptible insights. For this reason, most transcripts were given in Lithuanian and were translated into English. The Chat GPT translation went through careful verification ensuring its correctness.

RESEARCH RESULTS AND DATA ANALYSIS

Perception of AI usage behaviour and influencing external factors

The data shows that the academic staff in college are active users of artificial intelligence technologies at their work. The frequency of usage ranges from doing something every week to several times a week [1, 2, 4, 5, 7, 9, 10, 11, 18], from almost every day to regular use every day and full integration into the workflow [3, 6, 8, 12, 13, 14, 16, 17]. The participants name themselves as *"moderate users"* [2], "not experienced" [5], or *"haven't fully mastered it"* [8], some evaluate their practice with AI as "advanced users" [2, 12, 13, 14, 16], the recent experience

is about one year. Most of the interviewees mostly Chat GPT, but some indicated more AI tools, like Grammarly [12], Research Rabbit, Scholarly [14], Canva [14, 15], Suno.AI [4], and Gemini for Gmail [15]. According to the interview data, the participants embrace AI assistance for a range of tasks, including for brainstorming new ideas [1, 2,12, 16, 17], for data analysis and interpretation [1, 2, 12, 13, 14], to design the assignments for students [2, 5, 6, 12, 13, 15, 18], to summarise and structure information [1, 3,7, 15], to find scientific sources [3, 4, 5, 13, 14, 16], to collect information on a particular topic [5, 7, 8, 10, 11, 14, 15, 17, 18], to find examples [5, 6, 15], to write or refine academic text [4, 8, 9, 12, 14], to translate or correct the grammar [8,10, 12], to generate images, make presentations [2, 9, 14], to select music [4], to reply to emails, prepare standard documents [15], to have discussions with AI [1, 4]. It is noted, that some faculty members seek awareness about AI possibilities to check the originality of students' work and prepare themselves for a fair evaluation process [7, 11, 13]. It should be noted that open talk and human-machine discussion are explored among all the tasks.

Among the main external factors stimulating the usage of AI at work, the majority of interviewees indicated an institutional encouragement [12] and clear norms of ethics and academic integrity[11], ensuring by statements, like "…we have a guideline how to use AI" [1], *„the existing ethics code has already had an impact"* [15], following by training and seminars [5, 7], proposed by institutions: *„in higher education, they started inviting us to training sessions"* [15]. The next factor pushing to engage with AI is related to time pressure: a fast-paced work environment [5], time pressure and timesaving [1, 18], consumerism, a rally for production [16], increasing demand for efficiency [12] and similar statements are recorded.

The external encouragement to the participants comes from the positive experiences and recommendations from colleagues [5, 7, 9], considering *"the fact that students are increasingly using artificial intelligence tools"* [5], and from *"students' expectations to get tasks generated by AI"* [8]. Outstanding views reveal the lack of creativity [16], realisation of the fact that we can't escape this [15], and recognition of a fear of being replaced [16]. The external factors that can limit the full utilisation of AI's capabilities participants mostly indicated the limited access to the full package and advanced tools [2, 6, 9, 12], limited clarity on the ethical and appropriate use [14], lack of institutional support for comprehensive training [12], scepticism among colleagues about the reliability and implications of AI use [12]. The data of the research haven't fixed any enforcement of AI usage, neither positive nor negative, from the organisation, instead of this, the voluntariness of the behaviour is described as "I don't want to pressure myself to use AI more, I use AI when I need it (4), or I use it when necessary, when I'm short on ideas, I turn to Chat GPT for help [7].

To sum up, the teaching staff of the business college is an active user of artificial intelligence tools at work, adopting the new technology for various goals and purposes. Among the main external factors stimulating the usage of AI at work, the college teaching staff indicates institutional encouragement, time pressure, and the positive or negative influence of colleagues and students. The data unveils the existence of voluntarism in individuals' behaviour towards artificial intelligence usage in the academic environment.

The perceptions of AI usefulness

The influences on the perceived usefulness of technology acceptance in organisational settings can be revealed by investigating key antecedents of the determinant (Venkatesh & Davis, 2000). The informants of the qualitative inquiry reflected some insights into social factors affecting the usefulness of AI usage- subjective norm and image, corresponding to the diffusion theory of

innovations, which claims the social consequences when communicating the perceived information about a new idea (Rogers, 1983).

According to Venkatesh & Davis (2000), a subjective norm postulates the influencing role of the opinion of the valued social group on an individual's performance of a certain behaviour even against an individual choice. The study discloses the role of the academic community in setting the subjective norms for teaching staff for AI adoption in educational practice: "As a member of the academic community, I believe it is necessary, it is essential to deepen and apply this knowledge [13], besides that, *"we need to encourage each other to use modern tools"* [13]. Subjective norm comes from the educator's role in front of students, "…because we are trying to prepare them for life and real challengers" and *"we must strive to ensure that young people leave knowing as much as possible"* [15], confirming that an external pressure comes when *"judging by how much others use it"* [5]. However, it is worth noting that elderly respondents in a few cases utilised age-relating deterioration from the subjective norm to others periodically claiming *"I am from an older generation"* [15].

The research data reveal the understandable concern of any educator in any situation at work to ensure the norms of academic integrity, that influence the actual behaviour. The participants declare the fair in using AI to keep up with this subjective norm: *"Perhaps I feel a fear that it will be obvious that something was created using artificial intelligence"* [8]; *"The biggest limitations are ethical and intellectual property issues – we still don't know exactly which and how many results we can use"* [9)]; *"I must be fair in evaluation, and follow the norms of ethics and academic integrity"* [11]. More confidence in following the requirements of ethics and academic integrity have the participants with international scholarly and teaching experience: *"Within the ethical scope, I think it affects positively"* [1]; *"Ethical awareness ensures that AI applications are aligned with principles of fairness, accountability, and respect for privacy"* [12]; *"The existing ethics code … has made the assurance of fairness…"* [15]. These perceptions confirm the findings of Lee et al. (2024) and explain the importance of AI's impact on academic integrity as the greatest concern among academics.

Following Rogers (1983), an image is one of the most important motivations for almost any individual to adopt an innovation having a desire to gain social status. The research data fixed up a double-sided effect. At first, it declares the positive relatedness with an image: *"It's a modern thing, … a thing of the future, … it's progress"* [17], *"stimulates the desire to keep pace with technological progress"* [2], *"I need to pay more attention to innovations"* [8], although stressing the unavoidable need to keep looking after their image: *"I see the trends happening around me, so I don't want to fall behind"* [18], or *"I began making an effort because people started saying that AI will replace humans at work, but not those, who use AI tools"* [16], *"…fear of making a mistake holds me back* [8], *"I see other colleagues who claim to be good at it still make mistakes"* [15].

It is worth mentioning that image as the next construct of a social dimension receives another effect, different enough from the relative advantage of social approval (Moore & Benbasat, 1991). The usage of AI technology has also been viewed as a threat to self-perception. According to the self-perception theory articulated in 1972 by Daryl Bem, people come to know themselves in the same way that they learn about others by observing their behaviours in various situations by making attributions to their behaviours (Robak, 2001). The participants disclose the trials to determine their self-perception in front of artificial intelligence: *"It is not easy to ascertain, that the machine is starting to reason better and faster than I do, at least in some areas"* [4], *"Somewhat inhibiting factor is the uncertainty about who the author of the texts is, if it's not me,*

who requests them" [4] *"I feel like I know what I want, and I'm just waiting for the right answer"* [11].

Some interviewees, men of older age and senior academics, have stressed the threat of AI power on losing their self-esteem. This was declared as next: *"It's especially threatening when I realise, that I might no longer be developing, while AI is advancing rapidly"* [4], *"I don't like it when I'm being imposed or told what to do"* [11], *"LLM is designed for continuous learning, and I don't know if I'll be able to keep up because AI is learning and becoming smarter, while we remain the same"* [15]. This finding presents a possible correlation, which could serve further scholarly investigations.

The data analysis of the cognitive influence on perceived usefulness regarding AI usage in educational and scholarly environments provides a clear view of the importance of AI output quality for job relevance. The concept of job relevance is understandable as a perception regarding the degree to which a system can be applied to the job (Venkatesh &Davis, 2000). The data fixes the usefulness of AI usage to increase job performance, as a helper of time-saving [1], filtering out less useful things [15], releasing for other work tasks [3], for *"streamlining repetitive tasks, allowing to focus on more complex and creative aspects of work"* [12], for faster information gathering [10], for efficiency and innovativeness [14], for increasing collaborative potential [12].

It is important to note that all the research participants elucidate the quality of output at the core of their perception of usefulness, taking it to be the same as job relevance, and leaving the tangibility of the results aside.

When delivering the evaluation of AI output quality, the attitude comes to the full range, starting from *"AI doesn't really give useful outputs" [1], to "it doesn't always provide accurate information"* [6], also stating, that *"you cannot expect the best result yet, just something about"* [11], or *"AI's practical examples are more likely to be false than positive"* [10], up to *"it becomes a pretty good tool…"* [3], and *"so far, I always received useful answers"* [4], except the creative tasks, that are qualified in opposite: *"especially good in the creative process"* [3] and *"I eventually gave up on the idea of creating artistic works using AI"* [4].

The revealed qualitative responses establish trust and reliability as extremely important for the perception of AI usefulness and outcome quality: *"Trust issues, particularly concerning the reliability and potential biases of AI-generated outputs, require careful management"* [12], *"I ensure that their outputs are critically assessed and refined to maintain academic integrity"* [1], *"The information should always be verified"* [7, 17], *"I always double-check the answers provided by AI, because of many errors"* [8], *"It requires my critical oversight and refinement"* [14].

The research data determines the critical criteria for the outcomes of AI to be qualified as job-related in academic and teaching practice: novelty and specificity, accuracy, manageability and result demonstrability. The novelty and specificity criteria are described in the following way: *"The main criteria for me are whether it can go deeper and give specific findings and analysis which are not really generic"* [1], *"…if it provides multiple perspectives… helping to see the essence more broadly"* [3], *"…novel and engaging perspectives that add value to lectures and assignments"* [14], *"The most important criteria are the novelty and accuracy of the information"* [7]. Accuracy, *"the factual correctness of information provided"* [14], has been stressed by others, like *"equally vital, particularly in academic research"* [12], mentioning the need *"to enhance the precision and accuracy of academic outputs"* [18]. The tangibility of outcome results conveys the requirement of *"content to be well-structured and free from ambiguity"* [12], *"clear identification of errors if they are any"* [1], and *"clear and concise expression suitable for an educational context"* [14]. Manageability of information is essential for teaching and academic staff, so the

participants indicate the job-related criteria of the outcomes from AI technology usage to be *"according to my needs and requirements"* [1], when *"the content ... aligns closely with the specific objectives and context of my tasks"* [12], when *"...you know the purpose for which you are using it"* [17], when *"I ensure that the final outputs meet the intended goals and uphold academic standard"* [12], and when *"it helps me to work on multiple tasks easily"* [1].

Finalising, the perceptions of the teaching staff on the usefulness of artificial intelligence technologies, there is evidence that the academic community as a social stage for educators plays the most influential social role in setting subjective norms to be followed by its members. The policies and procedures of academic integrity at any institution influence the actual behaviour of AI usage. Once the adoption of AI technologies, according to the data, enhances the positive personal image in a social group of academic staff, the threat of self-perception and self-esteem in front of the status of artificial intelligence has been identified.

The data revealed the cognitive determination of AI technology usefulness, placing the output quality at the centre, leaving behind the antecedents of job relatedness and the result demonstrability. Trust and reliability of output quality are the most important factors influencing the perception of AI usefulness among the participants. The research discloses critical criteria for the outcomes of AI to be qualified as job-related in academic and teaching practice: novelty and specificity of information, accuracy and precision, manageability of tasks and tangibility of results.

The perceived ease of AI use

Another construct of the technology acceptance model, which influences behavioural intention, directly or through perceived usefulness, is perceived ease of use, an instrumental approach in adopting technological novelties. It should be noted that the research of Singh, Sinha and Liebana-Cabanilla (2020), when the acceptance of virtual reality as a new technology was tested by adapting the TAM, the perceived ease of use was found not significant for the users in predicting usage intention, contrary to perceived usefulness. The results of current research echo this attitude of perceived ease of use among teaching staff in college. When providing free insights on the system-specific perceived ease of use, most participants conveyed their perceptions linked with the usefulness of the usage and the intention to proceed with the behaviour.

A theory explains that computer self-efficacy, facilitating conditions, computer playfulness, and computer anxiety shape the perceived ease of use of a new system, particularly in the early stages of user experience with a system, and play as anchoring constructs (Venkatesh, 2000). The data of this qualitative research unfolds the antecedents of technological self-efficacy as beliefs of participants' abilities to perform. One of them is the level of familiarity from experience *("My familiarity with these tools is quite advanced"* [14], *"I don't utilise all of its capabilities, but as new tasks arise, I learn and incorporate new features"* [4], "*It is likely that I haven't found ways or don't know how to integrate AI into my work"* [8], *"I haven't analysed it thoroughly, I only have the basics of AI"* [18]). Once the interviewees express their lack of system-specific skills *("I am not a tech-savvy person"* [1], *"it seems that I do not know how to get the desired result"* [2]; *"when… in a more complex project…, I feel like a complete dilettante"* [2], *"I lack the skills"* [8]), the development of self-efficacy is linked to the usefulness of the usage: *"The skill gaps limit my ability to exploit AI's full potential"* [12], *" For now my biggest desire is to learn how to do it quickly because now I'm wasting time"* [2], *"I lack the skills to formulate a query well"* [15]). The factor of self-efficacy by the interviewees has to be managed and trained: *"My familiarity with these technologies enables me to use them effectively, though I continue to learn and improve my proficiency"* [12], *"I'd like to learn more about other AI tools and try them out for more creative*

tasks that require graphical representation" [3], *"It is important to learn how to formulate prompts properly"* [5, 6].

When discovering the perceptions of the research participants on the external control, that comes as technical or organisational support for AI usage, the data define the categories as follows: accessibility to advanced tools *("Free versions are no longer enough for a professional, maximum result"* [2, 6], "*We need access to the full package of advanced AI capabilities and duration*" [2], *"We must thoroughly understand all its capabilities and only use the paid versions"* [7], *"I can't learn to work at a premium level because it requires payment, so I would use it more and be able to if the institution covered the usage costs"* [18]), and the availability of training resources and mentorship (*"What is missing most is an experienced mentor who would simply recommend targeted tools"* [2], *"Specialized training would help make better use of Chat GPT potential"* [7], *"I would like to have a practical workshop to get a deeper understanding of the benefits of AI"* [3], *"…availability of training resources, and seamless integration with existing tools and platforms"* [12]). The analysed data ensures that facilitating conditions to support the implementation of AI technology in the educational environment, fixes the importance of accessibility to innovative tools and the value of training and mentorship.

With increasing expertise in AI usage, the participants present the role of system-specific objective usability, which means a comparative attitude of systems based on the actual usage level and effort required to complete the tasks (Venkatesh, 2000). This conforms to the theoretical statement of Venkatesh (2000), indicating a role of direct behavioural experience and the results of such experiences are expected to be important in shaping system-specific perceived ease of use over time. The Objective usability is interpreted as convenience and user-friendliness *("AI is more user-friendly now, so we don't need to be tech-savvy to figure it out"* [1], "*Chat GPT…is so easy to use"* [4], *"It's convenient to use, like Google, like Wikipedia, and now Chat GPT, it's so easy for me"* [13], *"…but with Chat, I corrected it much faster, and it takes less time…"* [15]), altogether with learning from experience *("It's essential to learn how to formulate a task for artificial intelligence well"* [16], *"...when I choose the right tool then the experience is positive"* [2], *"…I don't expect things that AI can't provide"* [4], *"My experience shows that the outcome directly depends on how the query is formulated"* [5], *"…but later I learn how to create a good request"* [13], *"I believe that attempts and learning to work with AI are a convenience"* [16].

It should be stated that the anchoring factors such as technological anxiety and playfulness determinants are indistinct. Just one meaning of intrinsic motivation is derived from curiosity and challenge: *"It stimulates curiosity to find out today's AI possibilities where they can be applied"* [2].

The system-specific perceived enjoyment is influenced by the experience of AI usage for the informants over some time is recorded as follows: *"I also enjoy exploring it deeper"* [1], *"I am intensively engaged in content visualisation"* [2], *"The speed of AI, when compared to high-level academic language and the broad context it covers, is encouraging"* [4], *"I highly appreciate the experience"* [10], *"I also quite enjoy the emotional aspect of working with AI – I understand that it's a machine, but it's nice when it shows interest in me, remembers certain aspects of my work, and on occasion even agrees that it's time to take a break and have a cup of tea"* [4]. The negative perception was fixed as an emotion to the technology, that concerns the creative task *("I eventually gave up on the idea of creating artistic works using AI – it's still too early, or maybe it will never be original enough"* [4]).

Overviewing we can state, that the data on the perceived ease of artificial intelligence use demonstrates lower importance from the participants compared with perceived usefulness,

exploring the significance of objective usability and system-specific perceived enjoyment over usage time, confirming the statement of Venkatesh (2000), that system-specific perceived ease of use with experience is reflecting objective usability, perceptions of external control specific to the new system environment, and system-specific perceived enjoyment.

[Garrison, Maddux, Johnson, Cummings, Gardner, Wiseman] the possibility of using computers

The behavioural intention toward AI usage

According to Davis (1993), the perceived usefulness and ease of use as cognitive responses of humans shape an affecting response, which comes as an attitude toward intention.

The data from the research demonstrates the growing intention to use the new technology in lecturing and academic work, because *"everything is just opening up, and the possibilities are limitless"* [17], that's why the teaching staff *"would like to use it more"* [18] and *"look forward to engaging more"* [11]. The majority of the interviewees declare the changing attitudes toward educational practices, mentioning the demand for new teaching and evaluation methods by stating, that „integrating AI into daily activities requires changing the methods of information search, task and lecture content preparation, and the way lectures are delivered in the classroom" [5] and that teachers *"won't be able to use their own created content for teaching and assessment, as they will constantly have to think of new ways to teach and assess students' knowledge"* [15], in order *"to handle situations with students' assignments and how to integrate AI into teaching material"* [6]. The results indicate the demand for *"new skills and knowledge of teachers to utilise effectively the capabilities of AI"* [5], besides that, one respondent expressed his goal *"to master AI tools not only for personal growth but also to mentor others in their responsible and effective use"* [12].

It is worth mentioning that the data from the informants disclose insights, that represent the multifaced attitudes of future behaviour with artificial intelligence technology. Some of the interviewees show an optimistic attitude, dreaming of AI acting as a personalised teacher's assistant, saying as follows: *"... teacher's AI assistant, I guess it's no longer an empty fantasy"* [2], *"I would also like to use AI as assistance for routine tasks (e.g., preparing contracts or sending reminders to both lecturers and students)"* [9], *"I imagine that AI could convey my speech in the auditorium, my material, in my original style, so that artificial intelligence would be my assistant, my avatar, my shadow, acting on my behalf and for my purposes"* [18]. A few others declare a pessimistic attitude to AI for future behaviour, stating the threat to human development, especially creativity skills, saying that *"creativity weakens if you don't use your creativity if you don't develop it; by taking the easy way, you lose your strengths, and this is a problem for both, students and teachers"* [16], and limiting actions for the AI adoption by placing the new technology for the defined fields as follows: *"It should be widely used for data management in technical, specific fields, it won't replace communication"* [13]. It was fixed that to some extent reserved optimism for AI prevalence has been recorded from the youngest among respondents *("Honestly, I would prefer if there were less artificial intelligence"* [16]), similar to the much older one, saying this phrase: *"At my age, having seen many innovations, I don't want the human connection to disappear or technology to become dominant"* [13].

A certain level of resistance to innovations is revealed in the collected data. It is important to ascertain that some of the participants exposed a demonstratively opposite to usual behaviour to confront AI-based practices: *"When AI tools made it much easier to create visual slides, I try to avoid this by returning to writing, drawing, and sketching with chalk on the board"* [4], *"It seems we will have to revert the old methods, like answering randomly selected exam questions"* [15], *"As a counterbalance to technological advancements and generated text, I use verbal*

presentations so that students choose their own words, reflect, and critically assess" [13]. A need for spiritual development is also mentioned as a counterbalance action: *"I have to do some spiritual work to avoid losing my self-esteem"* [4].

Finalising the data on the informants' attitudes to AI usage behaviour, the growing intention of AI usage is expected despite optimistic or pessimistic views for the future. The need for new skills and knowledge, and the demand for new teaching and evaluation methods, are exposed, together with some conscious actions to balance the threats are planned.

The research results acknowledge the actuality of acceptance of artificial intelligence technology by the college teaching staff and the factors influencing the perceived usefulness and ease of use in academic work. The findings suggest the most significant factors playing roles in cognitive instrumental reflection: the output quality tied to the job relevance, the accuracy and trustworthiness of information are shaping the perceived usefulness of AI acceptance. Belongingness to academic society and norms of academic integrity are the main social factors impacting college faculty members' perceived behaviour with innovative technology. Almost all the informants expect teachers' AI assistance to be disruptive innovations at their jobs while adopting artificial intelligence technology. It should be noted that the psychological concerns of some participants about their self-esteem affected by artificial consciousness, could serve for further scholarly investigations.

The study reflects the perceptions of informants from various academic fields to excavate particular insights into adopting AI for indefinite academic activities. The seniority and experience, creativity potential possession, and type of study field of academic personnel could be the scope of further investigation.

CONCLUSIONS

1. The qualitative research participants demonstrate a certain experience using artificial intelligence technologies. The majority characterise themselves as soft AI users, except for some who feel advanced. The teaching personnel embrace AI assistance for various tasks and purposes, mainly dealing with information processing for teaching and scholarly tasks. An unexpected insight into the usage of AI, the aim of chatting and having discussions was fixed. Among the main external factors, stimulating the usage of AI at work, the faculty members indicate institutional encouragement, time pressure, and positive or negative reactions from colleagues and students. The voluntarism of individuals in choosing their behaviour towards artificial intelligence usage exists in the academic environment.
2. The study discloses some insights into social factors affecting the perceived usefulness of AI. The role of the academic community and the norms of academic integrity play determinant roles in setting form subjective norms for the informants. The research unfolds a double-sided effect on another social factor- image. Many teaching members reflected the modernity and innovativeness of AI usage as factors for social approval, which positively relates to an image. Contrary to this, the usage of AI technology has also been viewed as a threat to self-perception. Some interviewees, men of older age and senior academics foresee the menace of AI power on losing self-esteem. As the data shows, negative social factors generate resistance to behaviour and intentions of contrary actions.
3. The research outcomes ascertain that the output quality is at the core of their perceptions of usefulness for all informants, directly imposing it on their relevance to the job. Trust and reliability are essential for evaluating the output quality and the perception of AI usefulness. Novelty and specificity, accuracy, manageability and result demonstrability are the critical criteria for the outcomes of AI to be qualified as job-related in academic and teaching practice.

The usefulness of AI usage by the interviewees is perceived as altered job performance resulting from AI adoption.

4. The empirical evidence from the qualitative research supports the conclusion, that the perceived ease of artificial intelligence use demonstrates lower importance from the participants than perceived usefulness, emphasising the importance of objective usability and system-specific perceived enjoyment over usage time. The development of self-efficacy is linked to the usefulness of the usage and the intention to proceed with the behaviour. The facilitating factors for the ease of use are accessibility to advanced tools and availability of training resources and mentorship.
5. The current research results demonstrate the growing intention to use the new technology in lecturing and academic work. The data exhibits the changing attitudes toward educational practices, mentioning the need for new teaching and evaluation methods and skills development. An optimistic attitude displays the full integration of AI into the academic workflow, adopting an AI-based personalised teacher's assistant. An opposite attitude toward future behaviour exposes the resistance to the threat to human development, especially creativity skills, by intending to take counterbalancing actions, like spiritual work to avoid losing self-esteem.

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PERSPECTIVES ON MEETING THE NEEDS OF PATIENTS WITH DEMENTIA AFTER THE PROVISION OF INPATIENT SUPPORTIVE TREATMENT AND NURSING SERVICES

DEMENCIJA SERGANČIŲ PACIENTŲ POREIKIŲ TENKINIMO PERSPEKTYVOS PO STACIONARINIŲ PALAIKOMOJO GYDYMO IR SLAUGOS PASLAUGŲ TEIKIMO

VILJARAS REIGAS
SMK College of Applied Science, Lithuania

Annotation

Dementia is a widely prevalent disease among older adults worldwide. The economic and social impact of dementia is immense, requiring a dedicated analysis of this issue. This article examines the experiences of meeting the needs of patients with dementia and provides insights into the possibilities for fulfilling these needs in nursing hospitals and patients' homes, as well as how family doctor team members can contribute to meeting these needs. A quantitative research method (a survey of study participants) was chosen for this study. The research was conducted among the relatives of patients (a total of 324 participants) who cared for their loved ones diagnosed with dementia in nursing hospitals. The collected data were analyzed using the SPSS statistical analysis software package. The study revealed statistically significant differences in the practices of meeting patients' needs in nursing hospitals, at home, and in the involvement of family physician teams in ensuring patient needs are met. The study found that the least attention is given to meeting the emotional needs of patients.

Keywords: dementia, nursing hospital, needs, relatives.

Anotacija

Demencija yra plačiai paplitusi liga visame pasaulyje tarp vyresnio amžiaus asmenų. Demencijos ekonominis ir socialinis efektas yra didžiulis bei dėl to reikalauja atskiros temos analizės. Šiame straipsnyje analizuojama pacientų, sergančių demencija, poreikių užtikrinimo patirtys ir pateikiamos įžvalgos dėl šių poreikių tenkinimo galimybių slaugos ligoninėse ir pacientų namuose bei kaip šeimos gydytojo komandos nariai gali prisidėti prie šių poreikių tenkinimo galimybių. Tyrimas atliktas tarp pacientų (iš viso 324 dalyviai) artimųjų, kurie slaugos ligoninėse slaugė savo artimuosius, kuriems diagnozuota demencija. Surinkti duomenys buvo analizuojami naudojant SPSS statistinės analizės programinį paketą. Tyrimas atskleidė statistiškai reikšmingus pacientų poreikių tenkinimo praktikos skirtumus slaugos ligoninėse, namuose, šeimos gydytojų komandų įtraukimą užtikrinant pacientų poreikių tenkinimą. Tyrimo metu nustatyta, kad mažiausiai dėmesio skiriama emociniams pacientų poreikiams tenkinti.

Raktažodžiai: demencija, slaugos ligoninės, poreikiai, artimieji.

INTRODUCTION

Research Relevance. Dementia is a widely prevalent disease worldwide that affects an individual's perception and behavior in a social environment, making them partially or completely dependent on others and reducing their cognitive abilities. The healthcare costs associated with dementia are enormous. However, despite the allocated economic and social resources, the needs of patients with dementia are still not sufficiently met, and in many countries, there are no established healthcare policy guidelines for dementia patients.

Research Objective. Given that patients with dementia require exceptional attention in organizing healthcare services, the objective of this study is to analyze the fulfillment of needs for patients with dementia after receiving supportive treatment and nursing care.

Research Methodology. A quantitative research method— a survey of study participants— was chosen for this study. The research was conducted among the relatives of patients (a total of 324 participants) who cared for their loved ones diagnosed with dementia in

nursing hospitals. The data collected were analyzed using the SPSS statistical analysis software package.

Research Results. The study revealed statistically significant differences in the practices of meeting patients' needs in nursing hospitals, at home, and in the involvement of family physician teams in ensuring patient needs are met. The study found that the least attention is given to meeting the emotional needs of patients.

Research Originality/Value. This study is one of the few in Lithuania that examines the fulfillment of needs for patients with dementia at different levels. The uniqueness of this research lies in the large sample of relatives of dementia patients who were surveyed. The findings of this study can serve as a basis for organizing healthcare policy guidelines for patients with dementia.

THEORETICAL FRAMEWORK

Dementia is described in various literary sources as a syndrome caused by brain disease, which can take both a chronic and rapidly progressive form. Dementia manifests through specific impairments that affect a patient's memory, thinking, perception, calculation, learning, language, and decision-making. These impairments are often accompanied by changes in emotional control, social behavior, or motivation. Among the most common causes of dementia are Alzheimer's disease and cerebrovascular diseases (Dening, Sandilyan, 2015).

Dementia can occur at different stages of life, though it is most diagnosed in individuals over the age of 65. Those who develop dementia before the age of 65 are classified as having early-onset (or working-age) dementia, while those diagnosed later fall into the late-onset dementia category. Although the exact causes of dementia are not fully understood, the condition always results in structural and chemical changes in the brain, leading to neuronal loss and brain volume reduction (Piggott, 2013; Taylor, Thomas, 2013).

Dementia is a clinical syndrome – a collection of symptoms and characteristics forming a recognizable pattern. Dementia syndrome has multiple causes, though some are more common than others. Recent scientific research is reshaping the boundaries of dementia classification and understanding (Norton et al., 2014; Thomas, Dening, 2013).

According to Butcher and Lesley (2018), each form of dementia manifests differently, and the disease progression varies depending on the type. Lewy body dementia, often associated with Parkinson’s disease, may cause visual disturbances. Sleep disturbances, such as movement or talking at night, are also common (Walker et al., 2015). Frontotemporal dementia can lead to significant personality and behavioral changes, as well as difficulties in forming and expressing words (Bang et al., 2015). Vascular dementia is often associated with urinary disorders, such as sudden urges to urinate, frequent urination, and urinary incontinence (Sakakibara, 2012). Those affected may become depressed, apathetic, and more emotional than usual (Nina, 2014).

The self-care abilities of people with dementia decline due to aging and disease progression. Patients require assistance in maintaining physical functions, including: basic physical needs (pain control, proper nutrition, hygiene), assistive devices in the living environment (patients lose strength and move more slowly, necessitating assistive devices for daily living) (Liu et al., 2017), fall prevention (people with dementia have a high risk of falls due to cerebellar degeneration and side effects of medication, including postural hypotension, gait disturbances, and movement dysfunction), health monitoring and medical care (due to dementia diagnosis, patients visit doctors periodically for disease control) (Srivastava et al., 2016), daily activities and rehabilitation (help improve patients' physical functions, balance, and gait stability), nutritional

support (many patients cannot eat independently or have poor appetite, which can lead to malnutrition) (Heng-Hsin et al., 2018).

Dementia affects not only the physical capabilities of patients but also their psychological needs and well-being. Psychological needs of people with dementia include: family support (due to pathophysiological changes, individuals with dementia feel insecure and require family support), emotional support (dementia affects not only the patient but also their family's life, especially when patients experience depression or suicidal thoughts), memory stimulation (recalling past experiences and hobbies can help improve cognitive functions), preserving dignity (patients and their families hope for a dignified end-of-life experience) (Joling et al., 2015).

As evident from scientific literature, meeting the needs of patients with dementia in both institutional healthcare settings and home environments is a critical aspect of healthcare services.

Some researchers have analyzed the fulfillment of dementia patients' nursing needs in both hospitals and home care. Hancock et al. (2006) evaluated the needs of people with dementia, considering the perspectives of residents, caregivers, staff, and researchers. They found that the most frequently unmet needs were related to daytime activities (76%), psychological distress (48%), and communication (41%). Orrell et al. (2008) found that people with dementia reported fewer met needs compared to caregivers and staff. Staff identified more met needs than family caregivers, while family caregivers reported more unmet needs than staff.

Regarding individuals with dementia living in the community, studies indicate that the most commonly unmet needs are related to daytime activities, social interaction, memory, information, and psychological distress. Van der Roest et al. (2009) surveyed 236 community-dwelling individuals with dementia and 322 caregivers. Results showed that the most frequently reported unmet needs by individuals with dementia were related to memory, information, and psychological distress, while caregivers most frequently cited memory, daytime activities, and social interaction as unmet needs. Caregivers reported both more met and unmet needs than individuals with dementia themselves.

In another study, individuals with dementia most reported unmet needs in information, communication, and daytime activities, while caregivers identified daytime activities, communication, and memory as primary unmet needs. Furthermore, younger individuals with dementia, those with a lower self-reported quality of life, more behavioral and psychological symptoms, and those without married caregivers, reported higher levels of unmet needs (Miranda-Castillo et al., 2013).

Analyzing challenges faced in providing healthcare services for hospitalized patients, researchers identified environmental unsuitability, staff shortages, and inadequate staff training in dementia care as key issues (Houghton et al., 2016). Hospital staff often feel unprepared to care for dementia patients (Allwood et al., 2017), and some experience feelings of guilt about failing to fully meet these patients' needs (Clisset et al., 2013).

It is important to recognize, from a nursing perspective, how vulnerable hospitalized dementia patients are. Healthcare staff must have ongoing, up-to-date knowledge of dementia, which should extend beyond medical aspects to include an understanding of the patient's emotional experiences. Only then can effective communication, support, advocacy, and collaboration with individuals living with dementia be achieved (Corbett et al., 2014).

Individuals with dementia frequently experience complex hospitalizations, accompanied by falls, mobility issues, pain, delirium, dehydration, or urinary incontinence. Hospital-acquired delirium is common in dementia patients but is often unrecognized or improperly treated. Additionally, dementia is associated with a higher risk of adverse events, including medication

errors, infections, and pressure ulcers. Despite this, clinical reviews suggest that staff often fail to recognize cognitive impairment as a risk factor for such incidents (Butcher, 2018).

Despite recommendations and research insights regarding healthcare for people with dementia, outcomes remain significantly worse compared to other patients. People with dementia stay significantly longer in hospitals after an acute event, are more likely to be readmitted after discharge, and a substantial proportion die in hospitals compared to those without dementia. Prolonged hospitalization exacerbates cognitive decline, physical health deterioration, and increases the likelihood of discharge to a nursing home.

Given the complexity of dementia care, many countries have begun implementing specialized dementia care models. Multidisciplinary specialist inpatient dementia units (SIDUs) have been developed within acute hospitals for patients with dementia and acute medical conditions. Their goal is to enhance dignity and autonomy through person-centered care, provided by both psychiatric and geriatric specialists trained in managing dementia-related behavioral and psychological symptoms (BPSD) and delirium (McCausland et al., 2019).

Acute hospitals often struggle to provide adequate care for people with dementia, as hospitalization may increase behavioral and psychological symptoms, elevate risks of negative outcomes, and accelerate cognitive decline. Studies indicate that hospital-acquired delirium occurs in nearly half (45.8%) of hospitalized dementia patients (Røsvik, Rokstad, 2020).

Given these challenges, some countries have developed national guidelines emphasizing person-centered dementia care (NICE, 2018; Laver et al., 2016). One widely recognized person-centered care model is the philosophy of social psychologist Tom Kitwood, which emphasizes valuing individuals with dementia and their caregivers, treating people as unique individuals, seeing the world from the perspective of a person with dementia, creating a positive social environment that enables well-being (Beardon et al., 2018).

This approach highlights the importance of both physical and social environments in supporting people with dementia and ensuring their individual needs and preferences are met (Røsvik, Rokstad, 2020).

RESEARCH METHODOLOGY

Quantitative research aims to assess data and summarize conclusions from the research sample, considering various perspectives. To achieve this, it is necessary to collect, analyze, and interpret data quantitatively. Quantitative research relies on data collection and analysis based on logical methods, with the goal of testing theories influenced by empirical and positivist ideologies. In quantitative research, the researcher selects a research problem based on models to explain the reasons behind certain occurrences. The explanation of trends indicates that a research problem can be resolved when the researcher attempts to identify common response patterns and observe differences in trends among individuals. For this reason, a quantitative research method—a survey of relatives of dementia patients—was chosen for this study to evaluate how patients' needs are met following supportive treatment and nursing care in hospitals.

Each study participant received a research instrument designed by the researcher based on the findings and insights of previous studies (McCausland et al., 2019; Butcher & Lesley, 2018; Butcher, 2018; Heng-Hsin et al., 2018; Travers et al., 2018; Allwood et al., 2017; Parke et al., 2017; Dening & Sandilyan, 2015). In this instrument, participants read a statement and indicated their level of agreement or disagreement on a 5-point scale, where 1 represented "strongly disagree" and 5 represented "strongly agree". The research instrument was structured into five sections: sociodemographic data of participants, attitudes toward meeting patient needs in nursing

hospitals, information on meeting patient needs after hospital discharge, experiences of relatives in fulfilling patient needs at home, involvement of family medicine teams in meeting the needs of dementia patients.

To assess the internal consistency of individual questions and sections of the research instrument, the Cronbach's alpha method was applied. Cronbach's alpha reliability is one of the most widely used reliability measures in social and organizational sciences. It describes the reliability of a sum (or average) of measurements when multiple measurements represent multiple raters, occasions, alternative forms, or questionnaire/test items. When measurements represent multiple questionnaire/test items – the most common application – Cronbach's alpha is referred to as a "measure of internal consistency reliability" (Bonett et al., 2014).

After evaluating Cronbach's alpha scores for all questions and separate sections of the research instrument, the values were found to exceed 0.9, which allowed for the research instrument to be used in further study stages (see Table 1).

Table 1. Evaluation of the Internal Consistency of the Research Instrument Questions.

Part of the Research Instrument	Number of propositions	Cronbach's alpha value
Sociodemographic data	4	0,924
Attitude towards meeting the needs in nursing hospitals	8	0,965
Information about the possibilities of meeting needs when discharged from a nursing hospital	12	0,981
Experience in meeting patients' needs at home	11	0,905
The involvement of the family medicine team in meeting the needs of patients with dementia	14	0,947
Overall assessment	49	0,919

Source: compiled by the author of the research.

For this study, health care institutions located in Western Lithuania (due to the researcher's convenient geographical location) were selected, which simultaneously provide inpatient palliative care and nursing, outpatient nursing, and family medicine services. There were 7 such health care institutions in the Western Lithuania region. The researcher contacted these institutions in writing and received consent from 4 institutions to participate in the study. Employees of the participating institutions were introduced to the study's objectives and data collection methods. Physicians treating patients were asked to mediate between the study participants and the researcher to invite participants to take part in the study. After receiving written consent from the study participants (324 participants), the researcher contacted them via the provided phone number and handed over the study instrument, which the participant then filled out.

For the analysis of the data collected during the study, the statistical analysis program SPSS 21.0 was chosen. With the help of this program, the following statistical indicators were analyzed: overall percentage distribution, mean, median, and chi-square value.

The ethics of the study were ensured by adhering to generally accepted ethical and moral standards. To ensure the principles of research ethics, the researcher followed the Declaration of Helsinki, adopted by the World Health Organization (WHO) in 1964 in Helsinki. This declaration outlines the ethical guidelines and principles for conducting research in the field of health sciences, particularly concerning human participation in research. The Declaration of Helsinki emphasizes the importance of ensuring participants' safety, the right to informed consent, and other ethical principles to ensure that research is conducted responsibly and fairly (WMA, 2013).

The essential ethical principles applied in this study include informed consent (study participants were informed in writing about the study's purpose, procedures, potential risks, and

benefits. They had the free will to decide whether to participate in the study), well-being and safety (the researcher ensured the participants' well-being and safety throughout the study, meaning the study was designed in a way that no risk was posed to participants), the principle of non-maleficence (the researcher ensured that the study would not cause harm to the participants), confidentiality and privacy (the researcher ensured the confidentiality of participants' data and the protection of personal information).

DATA ANALYSIS OF THE STUDY

Based on the data collected during the study, it was found that most patients with dementia were diagnosed with health issues such as insomnia, difficulty in formulating thoughts, urinary incontinence, apathy, and emotional turmoil (see Table 2).

Table 2. Health disorders identified among individuals with dementia.

Statement	Mean	Standard deviation	Chi square
Visual impairment	2.8	0.8	p<0.001
Sleep disorder	4.1	1.1	
Night wandering	3.9	0.9	
Difficulty in formulating words	3.5	1.1	
Difficulty in expressing thoughts	4.8	1.3	
Frequent urination	3.2	0.7	
Urinary incontinence	4.2	0.9	
Feeling down	3.9	1.1	
Apathy	4.5	0.6	
Emotional storms	4.7	0.5	

Source: compiled by the author of the research.

After analyzing the opinions of the study participants regarding how the needs of patients with dementia are met in nursing hospitals, it was found that the greatest attention in these institutions is given to ensuring proper nutrition and hygiene, organizing fall prevention, providing physician consultations, administering medications, and ensuring nutrition (see Table 3).

Table 3. Needs of patients with dementia met in nursing hospitals.

Statement	Mean	Standard deviation	Chi square
Pain management	2.4	0.4	p<0.001
Proper nutrition	3.9	1.1	
Ensuring hygiene	4.5	1.4	
Encouraging the use of assistive devices for daily living	2.6	0.8	
Fall prevention organization	3.9	0.6	
Periodic doctor consultations	4.5	0.5	
Medication administration	4.6	0.4	
Encouraging daily physical activity	3.1	0.8	
Ensuring nutrition	4.5	1.2	
Emotional support for other family members	1.8	0.5	
Emotional support for the patient	1.6	0.8	
Talking about past events (encouraging memories)	2.4	1.1	

Source: compiled by the author of the research.

The analysis of the study results revealed that the relatives of patients with dementia most often must meet the following needs of the patients in the home environment: organizing proper nutrition, encouraging the use of assistive devices for daily living, organizing periodic doctor consultations, and administering medications (see Table 4).

Table 4. Needs of patients with dementia met at home.

Statement	Mean	Standard deviation	Chi square
Pain management	3.1	0.6	p<0.001
Proper nutrition	4.2	0.8	
Ensuring hygiene	1.5	0.3	
Encouraging the use of assistive devices for daily living	3.6	0.9	
Fall prevention organization	1.9	0.5	
Periodic doctor consultations	3.6	0.9	
Medication administration	4.0	0.5	
Encouraging daily physical activity	3.5	1.1	
Ensuring nutrition	2.7	0.8	
Emotional support for other family members	2.9	0.9	
Emotional support for the patient	2.4	0.3	
Talking about past events (encouraging memories)	2.9	0.8	

Source: compiled by the author of the research.

After analyzing the involvement of the family doctor team in meeting the needs of patients with dementia, it was found that the members of the family doctor team most commonly participate in ensuring pain management, conducting periodic doctor consultations, and organizing medication administration (see Table 5).

Table 5. Needs of patients with dementia met by the family doctor team.

Statement	Mean	Standard deviation	Chi square
Pain management	3.5	0.4	p<0.001
Proper nutrition	1.8	0.7	
Ensuring hygiene	1.1	0.2	
Encouraging the use of assistive devices for daily living	1.9	0.8	
Fall prevention organization	0.9	0.6	
Periodic doctor consultations	4.5	0.4	
Medication administration	3.9	0.9	
Encouraging daily physical activity	3.1	0.6	
Ensuring nutrition	1.9	0.7	
Emotional support for other family members	1.9	0.5	
Emotional support for the patient	1.5	0.4	
Talking about past events (encouraging memories)	1.0	0.5	

Source: compiled by the author of the research.

As can be seen from the collected data, the experience of meeting patients' needs varies in different settings and with different participants. The results of the study revealed that, in nursing hospitals, efforts are made to meet all the patients' needs; however, little attention is given to the emotional well-being of patients with dementia. In the home environment, family members also strive to meet all the patients' needs, but insufficient attention is given to personal hygiene and the

fulfillment of emotional needs. The involvement of family doctor teams in meeting the care needs of patients with dementia is limited to providing medical assistance.

CONCLUSIONS

1. Meeting the needs of patients with dementia is an important factor in ensuring healthcare for these patients, which determines their future independence and the possibilities of providing services in various levels of institutions as well as at home.
2. When organizing healthcare services for patients, insufficient attention is given to the emotional health of patients.
3. In nursing hospitals, due to the presence of a multidisciplinary team of specialists, a more comprehensive fulfillment of the needs of patients with dementia is ensured compared to the fulfillment of needs in patients' homes and the involvement of the family doctor team in meeting these needs.

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EFFECT OF CYSTOSEIRA TAMARISCIFOLIA ALGAE EXTRACT ON HYPERPIGMENTED FACIAL SKIN: A CASE STUDY

CYSTOSEIRA TAMARISCIFOLIA DUMBLIŲ EKSTRAKTO POVEIKIS HIPERPIGMENTUOTAI VEIDO ODAI: ATVEJO ANALIZĖ

Linėja Dauparaitė
Austėja Diržaitė
Rasa Krasauskė
SMK Aukštoji mokykla, Lithuania

Annotation

Hyperpigmentation is a common facial skin problem characterized by darkened areas of skin due to excess melanin (Mikled, Chavasiri, Khongkow, 2024). *Cystoseira* brown seaweed is rich in biologically active compounds (vitamins, phenols, terpenoids, etc.), which act as excellent antioxidants, anti-inflammatory, moisturizing and anti-aging agents (Aly et al., 2024). The predominant compounds in *Cystoseira tamariscifolia* algae are palmitic acid, palmitoleic acid and eicosapentaenoic acid (El Amrani Zerrifi et al., 2020). Although these acids have limited direct effects on hyperpigmentation lightening, their functions may contribute to hyperpigmentation lightening from an additional perspective – hydration, regeneration promotion, barrier restoration and inflammation suppression (Jiryis et al., 2024; Prospéri et al., 2024; Thawabteh, Jibreen, Karaman, Thawabteh, Karaman, 2023). The case of a 37-year-old woman with a combination skin type (open and closed comedones in the T-zone (forehead, nose, chin)), dehydrated skin condition, and pronounced hyperpigmentation in the cheeks and hairline is presented. A course of 5 treatments with *Cystoseira tamariscifolia* algae extract was performed, home care was provided, and a structured diary was analyzed, which the study participants filled out after each procedure. The results of the study show that the hyperpigmentation of the facial skin decreased, the moisture level increased, and the quality of life improved, which is confirmed by the data of the facial skin condition diagnostic device. It was found that a course of 5 cosmetic procedures with *Cystoseira Tamariscifolia* double extract and selected home care products reduced the hyperpigmentation of the study participant, increased the moisture level and had a significant change in the quality of life - improved psychological and emotional well-being.

Keywords: *Cystoseira Tamariscifolia* algae, brown algae, hyperpigmentation.

Anotacija

Hiperpigmentacija yra dažna veido odos problema, kuriai būdingi patamsėję odos plotai dėl melanino pertekliaus (Mikled, Chavasiri, Khongkow, 2024). *Cystoseira* rudieji jūros dumbliai pasižymi biologiškai aktyvių junginių gausa (vitaminų, fenolių, terpenoidų ir t.t.), kurie veikia kaip puikūs antioksidantai, priešuždegiminės, drėkinančios bei senėjimą stabdančios medžiagos (Aly et al., 2024). *Cystoseira tamariscifolia* dumbliuose vyraujantys junginiai yra palmitino rūgštis, palmitoleino rūgštis ir eikozapentaeno rūgštis (El Amrani Zerrifi et al., 2020). Nors šios rūgštys turi ribotą tiesioginį poveikį hiperpigmentacijos šviesinimui, jų funkcijos gali prisidėti prie hiperpigmentacijos šviesinimo iš papildomos perspektyvos – drėkinimo, regeneracijos skatinimo, barjero atstatymo bei uždegimo slopinimo (Jiryis et al., 2024; Prospéri et al., 2024; Thawabteh, Jibreen, Karaman, Thawabteh, Karaman, 2023). Pateikiamas 37 metų amžiaus moters atvejis, kurios odos tipas – mišrus (T-zonoje (kakta, nosis, smakras) pasireiškia atviri ir uždari komedonai), odos būklė – dehidratuota, išryškėjusi hiperpigmentacija skruostų ir plaukų augimo linijoje. Atliktas 5 procedūrų kursas su *Cystoseira tamariscifolia* dumblių ekstraktu, suteikta namų priežiūra ir analizuojamas struktūruotas dienoraštis, kuris tyrimo dalyvės buvo pildomas po kiekvienos procedūros. Atlikto tyrimo rezultatai rodo, kad veido odos hiperpigmentacijos būklė sumažėjo, drėgmės lygis pakilo, taip pat pagerėjo gyvenimo kokybė, tai patvirtina veido odos būklės diagnostikos aparato duomenys. Nustatyta, kad 5 kosmetinių procedūrų kursas su *Cystoseira Tamariscifolia* dublių ekstraktu ir parinktomis namų priežiūros priemonės, sumažino tyrimo dalyvės hiperpigmentacijos būklę, padidino drėgmės lygį ir turėjo reikšmingą pokytį gyvenimo kokybei – pagerėjo psichologinė ir emocinė gerovė.

Raktiniai žodžiai: *Cystoseira Tamariscifolia* dumbliai, rudieji dumbliai, hiperpigmentacija.

INTRODUCTION

Research topicality and problem. Hyperpigmentation is a common facial skin condition characterized by darkened areas of skin due to excess melanin (Mikled et al., 2024). Melasma, solar lentigo, and post-inflammatory hyperpigmentation are the main types of hyperpigmentation, which usually do not pose a health risk, but can significantly affect quality of life - psychological and emotional well-being, self-esteem (Hsin et al., 2024; Makino, Huang, Cheng, Acevedo, de Oliveira, Mehta, 2023). The main causes of hyperpigmentation are UV exposure, hormonal changes, and inflammation (Makino et al., 2023).

Lightening cosmetics are usually tested first, the active ingredients of such products are mainly designed to inhibit the tyrosinase enzyme, which is particularly conducive to the hyperpigmentation process (Jiryis, Toledano, Avitan-Hersh, Khamaysi, 2024; Martínez-Gutiérrez et al., 2024; Mikled et al., 2024). It is stated that such products may contain harmful ingredients such as mercury derivatives, corticosteroids, resorcinol or retinoids, which can cause acute toxicity (Mikled et al., 2024). Seaweeds are characterized by an abundance of biologically active compounds (vitamins, phenols, terpenoids, etc.), which act as excellent antioxidants, anti-inflammatory, moisturizing and anti-aging agents (Aly et al., 2024).

The predominant compounds in *Cystoseira tamariscifolia* algae are palmitic acid, palmitoleic acid, and eicosapentaenoic acid (El Amrani Zerrifi et al., 2020). Although these acids have limited direct effects on hyperpigmentation lightening, their functions may contribute to hyperpigmentation lightening from an additional perspective – hydration, regeneration promotion, barrier restoration, and inflammation suppression (Jiryis et al., 2024; Prospéri et al., 2024; Thawabteh et al., 2023). The study is being conducted due to the insufficient amount of practical data revealing the effect of *Cystoseira tamariscifolia* algae on hyperpigmented facial skin without the use of any additional skin lightening agents.

The aim of the research. To determine the effect of *Cystoseira Tamariscifolia* algae on hyperpigmented facial skin.

The research methodology. The article presents the case of a 37-year-old woman with a combination skin type (open and closed comedones in the T-zone (forehead, nose, chin), dehydrated skin condition, with pronounced hyperpigmentation on the cheeks and hairline. The study participant was selected using a criterion-based selection principle based on skin condition.

The research results. The study found that a course of 5 cosmetic procedures with *Cystoseira Tamariscifolia* extract and selected home care products reduced the hyperpigmentation status of the study participant, increased the moisture level, which is confirmed by the data of the facial skin condition diagnostic device, and had a significant change in the quality of life – improved psychological and emotional well-being, based on the data of the structured diary.

Originality/Value of the article. The results of the study reveal the effect of *Cystoseira Tamariscifolia* algae extract on hyperpigmented facial skin. They are useful for cosmetologists in finding ways to reduce hyperpigmentation in clients, improve not only the level of moisture, but also improve the quality of life. The results of the study create opportunities for other similar studies, which would help to find more opportunities for conducting more detailed studies by analysing the various experiences of specialists and study participants. The practical results of the study confirm that the effect of the procedures is individual and can be adjusted to each case personally.

THEORY ANALYSIS

Hyperpigmentation is a common facial skin condition characterized by darkened areas of skin due to excess melanin (Mikled et al., 2024). Although melanin has a protective function – protecting the skin from UV damage, excessive melanin levels can lead to skin problems such as melasma, solar lentigo or post-inflammatory hyperpigmentation (Martínez-Gutiérrez et al., 2024). These skin conditions usually do not pose a health risk, but they can significantly affect quality of life – psychological and emotional well-being, self-esteem (Hsin et al., 2024; Makino et al., 2023). The main reasons for the development of hyperpigmentation are external factors (excessive exposure to UV rays, inappropriate or improper use of cosmetic products, constant mechanical irritation, allergies, certain medications, injuries and inflammations, infection) and internal factors (pregnancy, hormonal causes, aging), as well as certain diseases such as systemic lupus erythematosus, hyperthyroidism, lichen planus, etc. (Xing, Dan, Xu, Xiang, 2022).

The aetiology of hyperpigmentation is the result of multiple factors that increase melanocyte activation, melanosome development, melanin production, and melanin transfer to surrounding keratinocytes, which then form dark spots (Makino et al., 2023). According to Martínez-Gutiérrez et al. (2024), the hyperpigmentation process is particularly driven by the enzyme tyrosinase, and thus, inhibition of this enzyme may be one of the main reasons for inhibiting hyperpigmentation. Lightening cosmetics are usually tested first, and the active ingredients of such products are mainly designed to inhibit the tyrosinase enzyme (Jiryis et al., 2024; Mikled et al., 2024). However, it is claimed that such products may contain harmful ingredients such as mercury derivatives, corticosteroids, resorcinol, or retinoids, which can cause acute toxicity (Mikled et al., 2024).

Seaweeds are rich in biologically active compounds (vitamins, phenols, terpenoids, etc.), which act as excellent antioxidants, anti-inflammatory, moisturizing and anti-aging agents (Aly et al., 2024). The authors' study showed the phytochemical effect of Cystoseira brown algae on the increase of glutathione-S-transferase enzymes, which has a significant effect on reducing oxidative stress. Oxidative stress is one of the main factors in the pathogenesis of hyperpigmentation disorders, while antioxidants are one of the most effective groups of skin lightening agents (Xing et al., 2022).

The predominant compounds in *Cystoseira tamariscifolia* algae are palmitic acid, palmitoleic acid and eicosapentaenoic acid (El Amrani Zerrifi et al., 2020). Although these acids have limited direct effects on the lightening of hyperpigmentation, their functions may contribute to the lightening of hyperpigmentation from an additional perspective – hydration, regeneration promotion, barrier restoration and inflammation suppression (Jiryis et al., 2024; Prospéri et al., 2024; Thawabteh et al., 2023). To reduce hyperpigmentation – the skin must have an optimal amount of moisture to ensure proper regulation of melanocyte function (Prospéri et al., 2024). Palmitic acid does not directly reduce hyperpigmentation, but its moisturizing properties can strengthen the skin barrier function and contribute to the improvement of the overall skin condition and facilitate better absorption of active ingredients (Phongpradist et al., 2024). Palmitoleic acid promotes skin renewal, pigment movement towards the stratum corneum (Sung et al., 2024). Antioxidants and fatty acids help reduce inflammation and lighten the skin (Thawabteh et al., 2023). Eicosapentaenoic acid has strong anti-inflammatory properties, reduces inflammation associated with hyperpigmentation, and protects against oxidative stress (Huang, Wang, Yang, Chou, Fang, 2018). Phlorotannins are compounds in brown seaweed that play a crucial role in reducing hyperpigmentation by protecting the skin from the sun's infrared and blue rays

(Thawabteh et al., 2023). Thus, this study aims to determine the effect of *Cystoseira Tamariscifolia* algae on hyperpigmented facial skin without the use of any additional skin lightening agents.

RESEARCH METHODOLOGY

To determine the effect of *Cystoseira Tamariscifolia* algae on hyperpigmented facial skin, a mixed-method study was conducted. Oral survey, observation, qualitative content analysis, and comparative analysis methods were used. The criterion-based selection method is used to select specific cases or participants that best meet the research objective and can provide a deeper understanding of the problem under study (Gupta, Shaheen, Reddy, 2019). One participant was selected for the study according to the following criteria: gender – female, age – 37 years, skin condition – dehydrated with indicated hyperpigmentation. The conducted studies show that case study studies are significant and relevant (Ito et al., 2024).

At the beginning of the study, an oral survey was conducted to collect data on the use of cosmetic products, lifestyle and health status of the study participant. During the study, skin parameters (pigmentation and skin moisture level) were measured before each procedure and a week after the course of procedures to determine the effect of *Cystoseira Tamariscifolia* algae on hyperpigmented facial skin. According to the instructions of the manufacturers of the diagnostic device, all parameters are divided into three levels and after systematizing the scale units, the results are converted into percentages.

To determine skin pigmentation, the level of pigmentation status is divided into three parts according to the data of the diagnostic device (see Table 1). The smaller the scale unit, the lighter the pigmentation and its condition is. During the course of the procedures, the aim is to reduce the parameters.

Table 1. Skin pigmentation status in scale units

Pigmentation status level	Skin level measurement scale units
Severe hyperpigmentation	68-99
Increased hyperpigmentation	34-67
Normal pigmentation	0-33

Source: compiled by the authors according to the diagnostic apparatus scale in units

Similarly to the pigmentation level, moisture levels are calculated (see Table 2), but it is important to note that in the case of moisture, the smaller the scale unit, the greater the dehydration. During the course of procedures, the aim is to increase the parameters.

Table 2. Skin moisture level in scale units

Skin moisture level	Skin level measurement scale units
Normal	68-99
Dehydrated	34-67
Very dehydrated	0-33

Source: compiled by the authors according to the diagnostic apparatus scale in units

According to the manufacturer's protocol, the study participant underwent a course of 5 procedures every 7 days with *Cystoseira Tamariscifolia* algae extract. Additionally, in order to

enhance the effect of the extracts on the skin problem, a facial skin care routine was prescribed, supplemented with cosmetics with *Cystoseira Tamariscifolia* algae extract. After each procedure, the study participant filled out a structured diary, which consisted of 7 questions about the sensations when using the recommended home facial care products: "1. How would you describe your skin condition when using home care products intended for after the procedure?"; "2. How are you using home care products intended for after the procedure?"; "3. How do you feel in the morning when using home care products intended for after the procedure?"; "4. How do you feel during the day when using home care products intended for after the procedure?"; "5. How do you feel in the evening when using home care products intended for after the procedure?"; "6. Did you see any changes in your skin when using home care products intended for after the procedure?"; "7. Did you see any negative sensations when using home care products intended for after the procedure?".

RESEARCH RESULTS AND DATA ANALYSIS

The study participant is a 38-year-old woman who works long hours indoors. She uses a gel-textured cleanser, toner, and moisturizing face cream for her daily skin care routine, and supplements her routine with serums for her face and under-eye area in the evening. The main active ingredients are hyaluronic acid, which deeply moisturizes the skin and is able to bind up to a thousand times its weight in water (Bravo, Correia, Gonçalves Junior, Sant'Anna, Kerob, 2022), and the essential oil of the sedge promotes skin regeneration processes and increases the amount of collagen in the dermis (Serra et al., 2024). The study participant also uses an enzymatic scrub once a week, and uses sunscreen only in the spring and summer. Large randomized controlled trials have shown that regular use of a broad-spectrum SPF 30 sunscreen outdoors reduces the risk of skin cancer, photoaging, and sunburn (National Academies of Sciences, Engineering & Medicine, 2022). Also, prolonged exposure to UV rays can cause uneven pigmentation in the skin (Lim et al., 2024).

The lifestyle of the study participant is variable (which may also affect the skin condition), although the diet is relatively stable, according to the analysis of the nutritional strategy conducted by Fekete et al. (2022), there may be a lack of necessary nutrients - antioxidants, vitamins, omega-3 fatty acids, which can help maintain skin health and reduce signs of hyperpigmentation. The study participant often experiences stress, sleep quality is impaired, which can lead to skin barrier disruption, homeostasis imbalance, and also, according to the studies conducted - the release of alpha melanocortin (α-MSH) from the epithelium during sleep plays an important role in the progression of hyperpigmentation (Sampaio Xerfan, Andersen, Tomimori, Tufik, da Silva Facina, 2020).

Before the first procedure, after visual assessment of the skin condition, hyperpigmentation is visible on the cheeks. The condition of the skin of the study participant's face is additionally assessed based on the data of the skin diagnostic device. Before the first procedure, the pigmentation condition is assessed by 33 scale units, i.e. 33.3% - which is indicated as the highest limit in the level of "normal pigmentation". After the first procedure, before the second, the pigmentation level in scale units has significantly decreased - it is assessed by 19 scale units, i.e. 19.2%, before the third procedure 16, i.e. 16.2%, before the fourth procedure 14, i.e. 14.1%, before the fifth procedure 12, i.e. 12.1%, a week after the course of procedures - 18, i.e. 18.2%. No significant reasons have been identified why the pigmentation condition indicator has increased.

How the pigmentation condition of the other during and after the entire course of procedures is depicted in Figure 1:

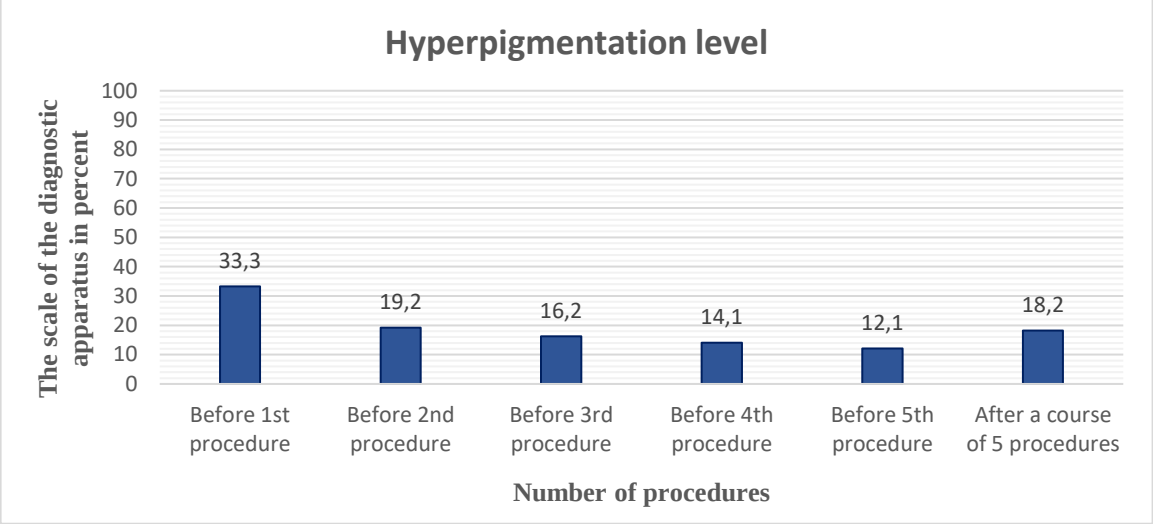

Figure 1. Changes in hyperpigmentation level

Source: compiled by the authors based on the data from the diagnostic device

Summing up the obtained results of the pigmentation condition, a positive change in the condition can be seen. Comparing the pigmentation condition before the first procedure and a week after the course of procedures, hyperpigmentation has decreased 15,1%.

When determining the moisture level of the epidermis, before the first procedure, by palpation, it was determined that the moisture level is low, the turgor is average, which indicates that the skin is dehydrated and needs intensive hydration. The condition of the skin of the study participant's face is additionally assessed based on the data of the skin diagnostic device. Before the first procedure, based on the average of the corner of the eye, cheek and lip on the left side of the face, the moisture level was assessed at 7 scale units, i.e. 7.1% - which is assessed as very dehydrated skin. After the first procedure, before the second, the moisture level increased and was assessed at 11 scale units, i.e. 11.1%, before the third procedure 15, i.e. 15.2%, before the fourth procedure the moisture level increased from very dehydrated to dehydrated - assessed at 55 scale units, i.e. 55.6%, before the fifth procedure the humidity level is assessed as normal – 74 scale units, i.e. 74.7%, a week after the course of procedures the moisture level decreased to 42 scale units, i.e. 42.4%, the skin is assessed as dehydrated. No significant reasons have been identified for the decreased moisture level. How the moisture level changed during and after the entire course of procedures is shown in Figure 2:

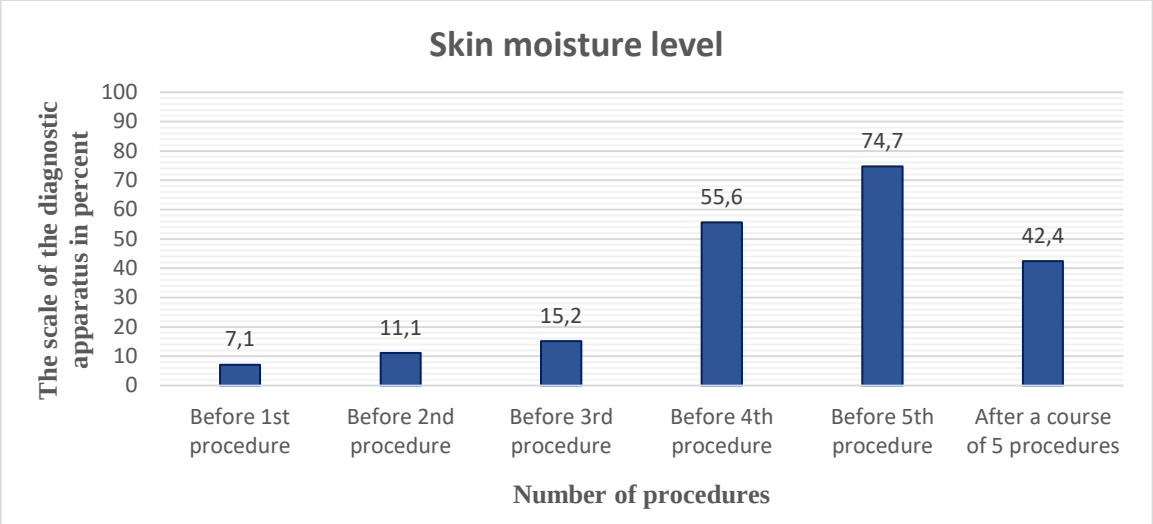

Figure 2. Changes in humidity level

Source: compiled by the authors based on the data from the diagnostic device

Summing up the obtained moisture level results, a positive change in the condition can be seen. Comparing the moisture level before the first procedure and a week after the course of procedures, the moisture level increased by 35.3% and from a very dehydrated state became dehydrated.

The results of the diagnostic device show that the effect of cosmetology procedures with *Cystoseira Tamariscifolia* extract on improving the pigmentation status and moisture level is positive. After each procedure, the study participant answered questions in a structured diary about the observed skin changes. The answers were systematized into categories and subcategories, highlighting affirmative statements (see Table 3).

Table 3. Structured diary affirmations about skin changes

Category	**Physical**	**Emotional**
Subcategory	**Positive**	**Positive**
Affirmative statements after the 1st treatment	"<…>nourished"; "<…>soft"; "<…>lighter"; "<…>moisturized".	"<…>pleasant smell"; "<…>like facial care products".
Affirmative statements after the 2nd treatment	"<…>skin condition improved"; "<…>skin feels comfortable"; "<…>rested"; "<…>brighter"; "<…>moisturized"; "<…>mimical wrinkles decreased".	"<…>relaxed".
Affirmative statements after the 3rd treatment	"<…>like the feeling of the skin"; "<…>shine";	"<…>I like to have a facial care routine".

	"<…>brighter"; "<…>general skin improvement"; "<…>gaining tone".	
Affirmative statements after the 4th treatment	"<…>skin condition improved"; "<…>easily absorbed into the skin"; "<…>tighter"; "<…>moisturized".	"<…>receive comments about the deterioration of my skin condition".
Affirmative statements after the 5th treatment	"<…>tighter"; "<…>moisturized"; "<…>feel comfort"; "<…>freshness"; "<…>gentle"; "<…>cleaner"; "<…>looks healthier".	"<…>I trust myself".

Source: compiled by the authors based on responses received from a structured diary questionnaire

Analysing the data obtained from the structured diary of the study participant, it is noticeable that after the first procedure, the study participant positively assessed the condition of her facial skin and the products that are intended for home facial care after procedures with *Cystoseira Tamariscifolia* extract. After the first procedure, the study participant stated that the skin looks nourished, soft, moisturized, and softer: "In the evening, the skin looks nourished, soft"; "When using the selected products, the skin looks more moisturized, nourished, and softer".

After the course of procedures, the study participant stated that her skin was firmer, more moisturized, softer, cleaner, and looked healthier: "I can clearly see an improvement in the skin condition, the skin is cleaner, brighter, firmer, wrinkles are almost invisible, and the skin looks healthy". The study participant did not experience or notice any negative feelings during the entire course of procedures. After completing the course of procedures, not only did the condition of her facial skin improve, but it also had a positive effect on the self-esteem and internal state of the study participant due to the positive comments she received about the improvement in her facial skin condition: "I feel comfortable all day long, I receive comments about the improvement in my skin condition"; "I am happy with the condition of my skin, I am more confident in myself because of the improved condition of my skin".

In order to maintain the obtained result, according to the manufacturer's recommendations, in order to further restore skin moisture and reduce hyperpigmentation, it is recommended to extend the course of procedures to a course of 7-9 procedures every seven days, then repeat the procedure once a month. Include cosmetics with antioxidants, such as vitamins C, E, B3, phytic acid, zinc, coenzyme Q10, glutathione, etc. in daily facial care routine (Jiryis et al., 2024; Xing et al., 2022). Also, use broad-spectrum SPF 30 sunscreen all year round, apply the product 15-20 min. before contact with the sun and reapply every 2 hours (Lim et al., 2024).

CONCLUSIONS

According to scientific sources, hyperpigmentation is a skin condition that does not pose a health risk, but can affect the quality of life - psychological and emotional well-being. *Cystoseira*

brown algae is characterized by an abundance of biologically active compounds and has a significant positive effect on lightening hyperpigmentation. The study found that a course of 5 cosmetic procedures with *Cystoseira Tamariscifolia* leaf extract and selected home care products reduced the hyperpigmentation condition of the study participant, increased the moisture level and had a significant change in the quality of life - improved psychological and emotional well-being.

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