

Generation Z: Implications for Universities

Jack V. Kalpakian ^{a,*}, Abdelkarim Marzouk ^b

^{a,b} *Al Akhawayn University Ifrane, Ifrane, Morocco*

**Corresponding author. E-mail address: J.Kalpakian@au.ma, Jackkalpakian@yahoo.com*

ABSTRACT

Providing proper educational services to Gen Z students poses a serious challenge to educators worldwide. This article attempts to make sense of the literature surrounding it. Using a literature review and reflections, this paper explores the implications of Generation Z on the University. It aims to see how universities can serve this current generation of students, especially those in the Global South. The literature review covers the period ending in 2020. The paper analyzes patterns in the literature and notes differences between various countries and disciplines in their approach to the challenges posed by integrating Generation Z into universities. Using a combination of literature and reflections on the practice of education, the paper argues that Generation Z can be served in tertiary education. The literature is classified using a typology reflecting the orientations of service, pathology, disciplines, and the philosophy of education. The paper is global in reach, covering articles concerning countries in Europe, Asia Pacific, Latin America, and the Middle East. It offers recommendations to universities from the authors' home university perspective. The paper concludes with a discussion and reflections concerning what the literature and experiences suggest and ends with a brief research agenda.

Keywords: Generation Z, University education, literature review

ABSTRAK

Memberikan layanan pendidikan yang tepat kepada siswa Gen Z merupakan tantangan serius bagi para pendidik di seluruh dunia. Penelitian ini mencoba memahami literatur yang mengelilinginya. Dengan menggunakan tinjauan literatur dan refleksi, makalah ini mengeksplorasi implikasi Generasi Z di Universitas. Penelitian ini bertujuan untuk meninjau bagaimana universitas dapat melayani generasi pelajar saat ini, terutama mereka yang berada di Global South. Tinjauan literatur mencakup periode yang berakhir pada tahun 2020. Makalah ini menganalisis pola dalam literatur dan mencatat perbedaan antara berbagai negara dan disiplin ilmu dalam pendekatan mereka terhadap tantangan yang ditimbulkan dengan mengintegrasikan Generasi Z ke dalam universitas. Dengan menggunakan kombinasi literatur dan refleksi praktik pendidikan, makalah ini berpendapat bahwa Generasi Z dapat terlayani dalam pendidikan tinggi. Literatur diklasifikasikan menggunakan tipologi yang mencerminkan orientasi pelayanan, patologi, disiplin ilmu, dan filosofi pendidikan. Makalah ini memiliki jangkauan global, mencakup artikel tentang negara-negara di Eropa, Asia Pasifik, Amerika Latin, dan Timur Tengah. Ini menawarkan rekomendasi untuk universitas dari perspektif universitas asal penulis. Makalah ini diakhiri dengan diskusi dan refleksi tentang apa yang disarankan oleh literatur dan pengalaman dan diakhiri dengan agenda penelitian singkat.

Keywords: Generasi Z, pendidikan universitas, kajian literatur

INTRODUCTION

Generation Z was welcomed into universities worldwide reasonably recently. This new group of students has never experienced a world without mobile internet telephony, and as a result, almost certainly processes information differently than previous generations. The term itself has origins in the United States. Generation Z is a concept that is grounded in the U.S. experience of the mass penetration of the Internet of the American market via cell telephony, the no child left behind educational policy of the George W. Bush administration, and the significant social and economic changes that occurred the country after the 2007 market collapse. But for better and worse, the concept has gained currency among non-US scholars and educational researchers in countries as diverse as Hungary, Slovakia, Poland, Latvia, Turkey, Indonesia, the Philippines, Thailand, Czechia, and Brazil.

What the term functionally means in each of these countries appears slightly different. For example, Loveland (2017) and Schwieger and Ladwig argue that Generation Z is entrepreneurial, while Wasilczuk and Richert-Kaźmierska (2020), using Polish evidence, argued that Generation Z is passive beyond its needs and needs entrepreneurial education to overcome that passivity. The career orientation in choosing majors is also divergent and lacks global consensus. While Loveland argues that Generation Z is career oriented in its choices, meaning that it prioritizes external concerns, research by Aryani and Umar (2020), using the Indonesian experience, points towards a series of internal factors that determine Generation Z's major and career choices including their personality, preferences, academic achievement – along very traditional lines. This paper is divided into a discussion of the literature review method, complete with a discussion of the typology used. It then moves to a section that derives recommendations for universities using the literature and critical reflections concerning practice by the two authors at A.U.I.

LITERATURE REVIEW AS A METHOD

This literature review relied on a combination of sources. First, some tertiary material concerning Generation Z. Second, JSTOR was consulted. The JSTOR search yielded very few results, but they were beneficial. They included a piece that dealt with the political implications of Generation Z for Middle Eastern and North African states, including Morocco (Gaub, 2019). Gaub concern focused on the political variables of obedience to authority by Generation Z and its attitude towards religion, but their focus was political and security-oriented. While not directly relevant to our review, Gaub showed that the concept has currency within our region beyond Turkey. Gaub's work confirms findings by Seemiller, Grace, Campagnolo, De Borba, and Da Rosa Alves (2019) comparing Generation Z students in Brazil using surveys that looked at students in terms of learning methods, interpersonal skills, and characteristics, among other sets of variables. The Seemiller team found that while the two cultures are different, the students have more in common than not due to the Internet and the relative homogenization of learning styles that resulted from it. More pertinent to our study was a poll commissioned by the educational organization Pearson and carried out by Harris in 2018. Some of the questions proved helpful in shaping our survey (Harris Poll, 2018).

Nonetheless, it is crucial not to group the generation as a single global category sharing the same viewpoints internationally: *"Even though it is reported by Stillman & Stillman (2017)*

that Gen Z are independent and competitive, we found that in our focused context, Gen Z students prefer to communicate and maintain good relationships with others. These different findings prove that Gen Z in different contexts possess distinct characteristics. Instead of learning from previous studies' results, educators may need to be aware that their students have unique personalities in which they need to observe their students' behavior to find suitable ways to manage their classroom (Sriprom, Rungswang, Sukwitthayakul, Chansri, 2019)."

There were articles on the ERIC educational database addressing Generation Z. Articles that dealt exclusively with Music and Art were excluded, and articles that included marginal references to Generation Z in JSTOR. Between JSTOR, ERIC, and more general references, we were left with about 37 articles that addressed Generation Z or some of its concerns or concerns about it.

- **The Service Orientation:** articles that aim to understand Generation Z and find ways of serving it like its interest. Serving Generation Z may take the form of pedagogy, especially video and other internet content in this literature.
- **The Pathology Orientation:** articles that enumerate the problems faced by Generation Z. These include obesity, Internet and mobile phone addiction, and excessive pragmatism. This literature sees Generation Z primarily as a problem. In the most extreme case, McMahon and Bernard see this generation and the Millennials as a national security problem for the United States.
- **The Disciplines Orientation:** articles that address Generation Z and its needs from the perspective of a discipline. These disciplines can be as diverse as Accounting, Education and EFL. The settings can be as diverse as Turkey and Indonesia.
- **The Philosophy of Education Orientation:** articles that seek to frame the pedagogies used with Generation Z in a larger framework. It is the rarest literature, and the articles in it are few, but they are worth looking at, particularly given the overall mission of A.U.I. (Akhawayn University Ifrane).

PATTERNS IN THE LITERATURE

All the articles begin with a definition of Generation Z. Typically, it is people born between 1995/6 and 2010 or a slight variation thereof. Suffice it to say that these are the students currently entering the university systems worldwide and will continue to do so until 2028-2032. The articles then discuss what separates these students from earlier generations. These differences include being deeply connected to the Internet while not understanding how it works. Unlike earlier generations, Generation Z has immense access to information but prefers visual presentations. Traditional reading-based disciplines often must produce new ways to induce the students to read, and the presence of articles in the literature aims to teach topics like literature and accounting to these students. As stated earlier, there is no consensus concerning entrepreneurialism, creativity, and the purpose behind a university education, as shown earlier in the introduction. In terms of methods, the articles tend to be either survey based or experiential-reflective. They tend to conclude with recommendations or assessments of learning methods. Most articles fall in this pattern, except the pieces in the Philosophy of Education pieces.

THE SERVICE ORIENTATION

This division of literature is defined by a tendency to want to cater to the strengths of Generation Z, particularly in technology. The dominant methods used are surveys or evaluation of technology. Like most of the rest of the literature, it includes recommendations that universities and colleges can implement. This orientation of literature divides into assignments, learning management systems, and beyond that a more general technology literature.

The assignments sub-literature suggests there can be simple and easy-to-implement assignments, such as e-portfolios, and reflective exercises for the students (Conefrey, 2016). Using her own experiences as lecturer at Santa Clara University, Conefrey uses a combination of literature review and reflection to recommend the use of e-portfolios for Generation Z. Conefrey indicates that the students work well within small groups, reflecting earlier work by Igel and Urquhart (2012) that looked at Generation Z in Middle School and recommended cooperative education and teamwork as an educational pedagogy for it. Regarding methodologies, both articles are outliers that utilized observation-reflection instead of surveys and statistics within this literature division. In contrast, Prud'homme-Généreux, Gibson and Csikari (2019) use pre-existing statistics to justify their recommendation for using video case studies with Generation Z. They acknowledge that the method has limitations in terms of depth but seek to deploy it as one of many tools that instructors have. The piece's strength lies in its clear step-by-step presentation on how to prepare and use video case studies. To that extent, this article can be helpful in training faculty. Reversing the direction of the videos, Parente and Haile (2020) argue that video preparation can be useful as assignment to students. The methodology used is a literature review followed by recommendations derived from Generation Z students' visual and learning orientation and employers' expectations from future employees. While the article is short and clear, it is methodologically weak to the extent their argument would have been reinforced if they had more colleagues give out video assignments and assess. The article derives a large conclusion from a single assignment, which leaves much to be desired. Foos (2019), writing in the same journal volume, uses a class exercise of assigning a blog as the basis of her study. The assignment includes using blogs and social media marketing to show students how it is possible to be "micro-influences." While a good assignment for Generation Z students, the article suffers from the same weaknesses as the work of Parente and Haile.

The assignments approach has the advantage of simplicity. On the other hand, the L.M.S. (Learning Management Systems) approach uses internet-based Learning Management Systems with Generation Z. The reviewed articles come from Indonesia and the United States, with Indonesia contributing two pieces on the topic. In the first article, Bambang Hariadi, Dewiyani, and Sudarmaningtyas (2016) discuss integrating Google Apps for Education into a university-integrated L.M.S., called Brilian. The system was used at the Institute of Business and Informatics Stikom Surabaya. The article details the development of the system, its entry into service and the assessments, its evaluation by instructors and students, and its prospects. The authors conclude that the L.M.S. was well received and is a useful tool for teaching Generation Z, but that universities need to ensure that they have laid the groundwork in terms of infrastructure and training to implement it.

Along the same lines, the Universitas Kristen Indonesia in Jakarta evaluated a commercial L.M.S. from Edmodo, an educational company (Siahaan, 2020). The narrower survey targeted Generation Z students, specifically English language students. The students indicated that they benefited from the L.M.S. They also stated that they enjoyed and got value

from face-to-face instruction. In contrast to the two Indonesian cases, the study from the Texas A&M University at Kingsville (Ortiz and Green, 2019) looked at how the students interacted with their L.M.S. system in terms of mobile devices Green and Ortiz found that the cell phone become the dominant means of accessing L.M.S. websites and that it takes place around the clock and all days of the week, meaning that it is a beneficial method of getting the students engaged.

This division of the service literature contains two sampled articles representing a wider view. They are focusing on promoting Learning Communities to Generation Z students using electronic means. Spears, Zobac, Spillane, and Thomas (2015) argue that Learning Communities need to be pitched or "marketed" to students using electronic means. Given the reliance of Learning Communities on face-to-face interaction between students and carefully constructed networks of peers, teachers, administrators, and staff for mentoring, advise, instruction and guidance outside class, the online experiences and orientation of Generation Z pose a challenge that the authors Using reflection on practice as well as surveys, the Spears team gathered data from Indiana University/Purdue University Indianapolis and Northern Illinois University. The piece concludes with recommendations to better market Learning Communities to Generation Z. While this was one of the better pieces in this literature survey, it is also enigmatic. At its core, it implies that there is a fundamental disconnect between Learning Communities and Generation Z, otherwise, why the need to market such a sound concept to students? The piece also does not see the benefit of virtual learning communities. In terms of rigor, one of the better pieces was a mixed methods study conducted in Turkey using responses of 882 university students. The authors included a survey used to build the survey draft that accompanies this literature review. The findings include the need for integrating technology in and out of the regular classroom, more flexible learning environments, and more peer learning (Sanalan and Taşlibeyaz, 2020). A related and similar approach is advocated by Schwieger and Ladwig (2018). The method used is a meta-study of the characteristics of Generation Z and comparing it with employer's expectations, and then using the comparison to structure classes and classrooms to fit the needs of the students. The authors offer many solutions for the students, including employer involvement in curriculum development, boot camps, storytelling, and the blended online/face to face classroom.

THE PATHOLOGY ORIENTATION

This is a set of literature that finds many of the characteristics of Generation Z troubling, if not outright unhealthy. As stated earlier, some of this literature, including Gaub's work and the work of Brendan and McMahon sees Generation Z as primarily a political problem because of its hostility to authority and its lack of commitment to organizations and structures. But closer at hand are concerns about social media addiction, overreliance on visual learning, cell phone addiction, and even computer illiteracy. These are in addition to the concerns about obesity and passivity in the face of change and challenges. Now, this literature is not inherently against Generation Z, but it attempts to raise concerns early enough to address them within the students' educational journey. What unites this orientation in literature is pathology. The message is that there is something wrong with Generation Z, and a cure is needed.

A Turkish team writing in the *International Journal of Psychology and Educational Studies*, argues that Smartphone addiction can predict poor academic performance and loneliness in 1 percent and 4 percent of the cases, which is significant for countries with millions of students. The team used a survey of 490 Turkish high school students using their academic

performance, the UCLA measures of loneliness, and a way of measuring smartphone addiction (Yalçın, Özkurt, Özmaden, and Yağmur, 2020). The Turkish findings run in parallel to the findings of Nicholas Kardaras writing in *Scientific American Mind* in 2016. Using his own observations as a clinical psychiatrist as well as an implicit literature review, Kardaras argues that Generation Z is particularly vulnerable to social media addiction and many within its ranks suffer from not having relationships in the real world with real context and people. Similar and far more racial arguments along these lines were made by Zaitchik (2019). For Zaitchik, the screens, whether television or smartphone are controlled by corporate interests who use social media, the Internet, and the digital orientation of youth to shape the world in a manner that spares them scrutiny and immerses them in brands and marketing.

While the preponderance of the articles that address technology concerns themselves with its effects, one article argues that, at least in Hungary, Generation Z is digitally illiterate (Zsakó and Horváth, 2017). The authors pass this judgment using the Hungarian national curriculum's goals for informatics education and comparing it with the Hungarian results on the OECD's Program for International Student Assessment (PISA) survey. The authors place mathematics and computer science at the core of computer literacy and find that the PISA results deeply troubling concerning Generation Z. Being computer savvy and a digital native does not make Generation Z capable of understanding the systems it is using. To a significant extent, this is the most alarming argument raised by any article, given the centrality of technology in defining this generation. It suggests that universities should revisit how we teach Introduction to Computers and consider a more widespread computer culture among our students.

The obesity problem is highlighted in a January 2011 article in the *American Journal of Business Education*. The authors, Silverstone and Teatum, argue that a third of U.S. school children are obese, and the solution lies in getting them to move precisely using the reason they have not been moving: technology and gaming. They call for government and private sector involvement in setting up and "exergaming" industry and their tone parallels the service articles discussed earlier. The article is written for a U.S. context, and in many ways attempts to try to make the best of what is a dire situation. The U.S. obesity epidemic is caused by a wide array of social, infrastructural, and economic issues that go beyond technology and beyond computer gaming in all its forms. And while the problem does exist in our context, some universities have clearly invested in athletic facilities and made sports available to their whole communities. The only remaining action may be requiring health and fitness classes.

In a Polish study, Wasilczuk and Richert-Kaźmierska argue that while Generation Z is proactive regarding its own needs, it is less entrepreneurial and less likely to take risks than other generations. Their work relied on a survey of 757 Polish students (2020). The authors recommend Entrepreneurial Education as a solution. The concerns in the article mirror some A.U.I. faculty concerns about the current cohorts. While the students are proactive regarding their own needs, they appear not to want to take risks, either on their own or in terms of new and innovative ideas. Like the other branches of this literature and contrasting with the service literature, this article sees Generation Z as a problem that needs to be addressed rather than celebrating its uniqueness and serving it per its needs.

THE DISCIPLINES ORIENTATION

In contrast to pathological literature, the disciplinary orientation in the literature shares some similarities with the service orientation discussed earlier. Of the eight articles reviewed within

it, at least four can also be classified within the service orientation. Regardless of the method used, all the articles aim to make Generation Z fit the discipline or subject being studied or vice versa. There is an emphasis on pedagogy, with an interest in learning styles, with all the articles addressing these issues in one form or another. There are at least two articles that advise caution concerning putting all the readings in electronic form, given the continued interest of some students in reading materials on paper. One article addressed the issue of school autonomy and governance and another described as a psychological deconstruction of Generation Z. The methods included focused observation, literature reviews, curricular goals assessments, and surveys of opinion, psychology, and demographics. Several articles included actionable recommendations about promoting the discipline to a Generation Z audience while improving instruction. The table below summarizes the articles, which include work from Latvia, Czechia, Slovakia, the Philippines, Indonesia, Turkey, Thailand, and the United States.

Table 1. Literature concerning the response of disciplines to generation Z

Discipline and Year	Authors	Methods and location	Argument	Notes
Engineering, 2017	Moore, Jones, and Frazier	Defining Gen Z, outlining its learning styles making recommendations to meet ABET standards. U.S.A. (United States of America).	Give the students problem-based assignments, assess often, and help them sort through information.	Service oriented.
Teaching, 2018	Carter	Literature review, observation and reflection, U.S.A.	Use blended learning and problem-based approaches.	Service oriented
Teaching, 2020	Çankaya, Tan and Balıkcı	Survey and interviews of Gen Z 351 Turkish teacher candidates.	Gen Z prefers decentralized school governance.	Turkish specific and a political survey.
Accounting, 2019	Hatane, Willianto, Junaidi and Jessica	Survey of East Java High School students.	Accounting is unattractive to traditional students.	Calls for more challenging accounting degrees.
EFL, 2019	Klímová and Poláková	20 vocational and technical students studying English in Czechia and Slovakia. Pre and posttest, control groups, comparing phone to paper learning.	One sixth of Gen. Z preferred to learn on the phone. The phone should not be the go-to response in EFL education.	It has similarities to A.U.I., despite the difference in focus, given the L.C. (Language Center) 's role.
EFL, 2019	Sriprom, Rungswag, Sukwitthaykul and Chansri	Psychological survey of 400 students in Bangkok, Thailand	Authors recommend integrating technology and separating lectures and discussion.	Some of the differences may also exist in our context.
EFL, 2020	Bana	43 Petra Chr. Univ. students, interview and questionnaire, Indonesia	One fifth preferred reading from paper.	Backs up the Czech and Slovak findings.

EFL/Literature, 2017.	Dela Rosa	Survey and interview of Filipino 10 th grade students.	Advocates Generation Z online literature program.	Service oriented.
Environmental Studies, 2018.	Fedosejeva, Boce, Romanova, Ilisko, and Ivanova.	67 Latvian vocational students studying railway operations, and three instructors were divided into three groups, observation and surveys were used.	Generation Z is different and needs holistic approaches to education, including in Environmental Sustainability.	It is very service oriented and needs through editing.

THE PHILOSOPHY OF EDUCATION ORIENTATION

The fourth and final orientation in the literature deals with what amounts to a philosophy of education approach. Pousson and Myers (2018) overlap the principles of Universal Instructional Design with Ignatian Pedagogical approaches. The Ignatian approach to education is the philosophy that informs Jesuit education. Deriving from the idea that the eye sees, the mind thinks, the heart feels and the hand moves, the approach can be summarized as "context, experience, reflection, action, and evaluation." Pousson and Myers argue that all these elements can be incorporated online and in contexts accessible to Generation Z and that the approach is worth considering for the students' online experiences. While the arguments can apply in the context of the developed world, we may need to find analogs of the practice within the heritage of the Arab world, including Morocco. Arguing from a far more secular perspective, Boholano surveys 207 prospective teachers in the Philippines and verifies her results with interviews (2017). She uses the findings to argue that technology cannot be used in the classroom without arming the teachers and students with critical thinking skills. The third piece that fits within this stream of literature is about faculty caring. Using interviews with 31 students, Miller and Mills of the University of Southern Mississippi argue that faculty caring about their students is a critical indicator of student engagement and success for Generation Z (2019). In some ways, this last article is both the simplest and the most challenging piece for any university to consider.

FINDINGS AND DISCUSSION

An overall view of the literature suggests that only three universal characteristics of Generation Z concern us in terms of being a university. These are:

- A learning style that is visual and that uses technology in the form of streamed video.
- A general rejection of authority means a harder time in classroom management.
- An inward turn that limits being proactive.

While it may be tempting to give in to the recommendations of the service and disciplines orientation within the literature, it is important not to do so entirely. There is a fine line between adjusting to students' learning styles within any cohort and accepting passivity. There are clearly areas of knowledge that require self-motivated engagement from the student, such as learning how technology works, and these must be encouraged by universities and not dismissed. There is also the whole issue of health and the relative lack of movement experienced by this generation. That said, we can extract four simple recommendations from the literature.

- Instructors should be trained on vetting and using free streaming video sources.
- Instructors should be encouraged to follow their students closely and use a caring ethos.

- Universities should look at maintaining a running assessment of students' internet use and time.
- Design assignments that exploit the student's interest in social media and online platforms.

Universities exist to empower students to become problem-solvers, knowledge-creators, and creative thinkers. To the extent that Generation Z has diverse ways of processing knowledge and information, it can and should be adjusted to in terms of its learning style. But none of the three traditional roles of the University are compatible with passivity. We believe that passivity is, to an extent, a matter of perspective. Generation Z students are more active in separate ways that are familiar to previous generations of students.

CONCLUSION

Global literature shows that Generation Z is different from previous generations and that its learning styles differ. It has had to cope with dramatic qualitative and quantitative changes in how knowledge is produced. These changes are greater in impact than the introduction of the printing press and the proliferation of cheaper books. A student can come to class with an Android phone to access vast libraries of open-source textbooks, videos, documents, and simulation programs, including those covering the natural sciences. While not problem-free, the technology-empowered students in a manner unmatched in human history and should be exploited fully by faculty.

Future research should include in-depth studies that test whether we are serving Gen Z using focus groups and interviews to see whether the University is serving the students' needs, whether the disciplines feel that they have been able to socialize the students within their structures, and which philosophies of education appear to be the most effective in instructing the students. We also need to find a way of testing and measuring the veracity of the claims raised in the pathology literature, by looking at random samples of Gen Z students and comparing them with the population at large.

REFERENCES

- Aryani, F., & Umar, N. (2020). Factors affecting z generation on selecting majors in the University: An Indonesian case. *Journal of Social Studies Education Research*, 11(3), 109-133.
- Bana, A. (2020). Students' perception of using the Internet to develop reading habits. *Journal of English Teaching*, 6(1), 60-70.
- Boholano, H. (2017). Smart social networking: 21st century teaching and learning skills. *Research in Pedagogy*, 7(1), 21-29.
- Çankaya, İ., Tan, Ç., & Balikçi, S. (2020). Generation Z support autonomous management in school: Evaluation of teacher candidates' views. *Shanlax International Journal of Education*, 8(4), 38-44.
- Carter, T. (2018). Preparing Generation Z for the teaching profession. *Srate Journal*, 27(1), 1-8.
- Conefrey, T. (2016). Technology in the college classroom: Crisis and opportunity. *Educational Technology*, 37-40.
- Fedosejeva, J., Boče, A., Romanova, M., Iliško, D., & Ivanova, O. (2018). Education for sustainable development: The choice of pedagogical approaches and methods for the

- implementation of pedagogical tasks in the Anthropocene age. *Journal of Teacher Education for Sustainability*, 20(1), 157-179.
- Foos, A. E. (2020). Teaching Generation Z social media marketing: A Micro-influencer project. *Journal of Instructional Pedagogies*, 24.
- Hariadi, B., Sunarto, M. J., & Sudarmaningtyas, P. (2016). Development of web-based learning application for generation Z. *International Journal of Evaluation and Research in Education (IJERE)*, 5(1), 60-68.
- Hatane, S. E., Willianto, K. A., Junaidi, C. P., & Jessica, C. (2019). The Dimensions of Accounting Profession in the View of High School Students as the Generation Z. *Journal of Education and Learning (EduLearn)*, 13(4), 550-558.
- Igel, C., & Urquhart, V. (2012). Generation Z, meet cooperative learning: Properly implemented cooperative learning strategies can increase student engagement and achievement. *Middle school journal*, 43(4), 16-21.
- Kardaras, N. (2016). GENERATION Z. *Scientific American Mind*, 27(5), 64-69.
- Loveland, E. (2017). Instant generation. *Journal of college admission*, 235, 34-38.
- McMahon, C. J., & Bernard, C. J. (2019). Storm clouds on the horizon. *Naval War College Review*, 72(3), 84-100.
- Miller, A. C., & Mills, B. (2019). 'If they don't care, I don't care': Millennial and Generation Z students and the impact of faculty caring. *Journal of the Scholarship of Teaching and Learning*, 19(4), 78-89.
- Moore, K., & Frazier, R. S. (2017). Engineering education for generation Z. *American Journal of Engineering Education (AJEE)*, 8(2), 111-126.
- Ortiz, S., & Green, M. (2019). Trends and patterns of mobile learning: A study of mobile learning management system access. *Turkish online journal of distance education*, 20(1), 161-176.
- Parente Jr, J. M., & Haile, Y. (2020). Student-prepared videos in undergraduate instruction. *Journal of Instructional Pedagogies*, 24.
- Poláková, P., & Klímová, B. (2019). Mobile technology and Generation Z in the English language classroom—A preliminary study. *Education Sciences*, 9(3), 203.
- Poll, H. (2018). Beyond millennials: The next generation of learners.
- Pousson, J. M., & Myers, K. A. (2018). Ignatian Pedagogy as a frame for universal design in college: Meeting learning needs of Generation Z. *Education sciences*, 8(4), 193.
- Prud'homme-Généreux, A., Gibson, J. P., & Csikari, M. (2019). Creating a video case study. *Journal of College Science Teaching*, 48(4), 46-53.
- Rosa, D., & Obillos, J. P. (2017). From coercion to autonomy: Designing a literature program for 'Generation Z' learners. *Journal on English Language Teaching*, 7(3), 7-21.
- Sanalan, V. E. H. B. İ., & Taşlıbeyaz, E. (2020). Discovering Turkish Generation-Z in the context of educational technology. *Journal of Educational Issues*, 6(2).
- Schwieger, D., & Ladwig, C. (2018). Reaching and retaining the next generation: Adapting to the expectations of Gen Z in the classroom. *Information Systems Education Journal*, 16(3), 45.
- Seemiller, C., Grace, M., Dal Bo Campagnolo, P., Mara Da Rosa Alves, I., & Severo De Borba, G. (2019). How generation Z college students prefer to learn: a comparison of U.S. and Brazil students. *Journal of educational research and practice*, 9(1), 25.
- Siahaan, E. B. (2020). Students' perception of Edmodo use as a learning tool. *Journal of English Teaching*, 6(1), 12-23.

- Silverstone, S., & Teatum, J. (2011). Technology: The problem or the solution to childhood obesity. *American Journal of Business Education*, 4(1), 37-60.
- Spears, J., Zobac, S. R., Spillane, A., & Thomas, S. (2015). Marketing learning communities to Generation Z: The importance of face-to-face interaction in a digitally driven world. *Learning Communities: Research & Practice*, 3(1), 7.
- Sriprom, C., Rungswang, A., Sukwitthayakul, C., & Chansri, N. (2019). Personality traits of Thai Gen Z undergraduates: Challenges in the EFL classroom?. *PASAA: Journal of Language Teaching and Learning in Thailand*, 57, 165-190.
- Wasilczuk, J. E., & Richert-Kaźmierska, A. (2020). What potential entrepreneurs from generation Y and Z lack-IEO and the role of E.E. *Education Sciences*, 10(11), 331.
- Yalçın, I., Özkurt, B., Özmaden, M., & Yağmur, R. (2020). Effect of smartphone addiction on loneliness levels and academic achievement of z generation. *International Journal of Psychology and Educational Studies*, 7(1), 208-214.
- Zaitchik, A. (2019). R.I.P., Kill Your T.V. *The Baffler*, (48), 80-94.
- Zsakó, L., & Horváth, G. (2017). Quo Vadis, Informatics Education?--towards a more up-to-date informatics education. *Acta Didactica Napocensia*, 10(3), 45-52.