

Proceedings from the Round Table

Teaching Generation Snowflakes: New Challenges and Opportunities

Lucie Sara Zavodna,
Torberg Falch
(eds.)



Prague University of Economics and Business

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**Teaching Generation Snowflakes:
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All contributions have been reviewed. All authors were also reviewers of other articles at the Round Table.

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Preface

Generation of Snowflakes is a term that is often used of people in the generation born in 1995 - 2010. This term was first featured as slang in the 1996 novel *Fight Club* authored by Chuck Palahniuk. As the book explains, "You are not special, you are not a beautiful and unique snowflake." Collins dictionary gives a simple definition of Generation Snowflake as "The generation of people who became adults in the 2010s, viewed as being less resilient and more prone to taking offense than previous generations."

The word 'snowflake' references to their originality, since all snowflakes are unique. This generation came to be due to childhood overprotection (so called helicopter parenting). Older generations brand them as fickle, sensitive, and of having an exaggerated sense of what's politically correct. This generation is made up of digital natives, which means that they know a lot about technology and learn new things quickly. Thanks to their lack of patience, Snowflakes often find creative ways to solve problems. Consequently, they can adapt faster to changes. This is useful since the labor markets demand workers who can initiate changes and handle rapid changes. Generation of Snowflakes also has unique problems that other often neglects.

Some authors use different names for the snowflake generation as they see this term a bit pejorative. We can see Generation Z, Gen Z, Gen-Zer, iGens, digital natives, net Generation, Zers, the @generation, pluralist generation, Post-Millennials, Tweens, eBay babies, The App Generation, Gen Tech, Gen Next, Rainbow Generation, Post-Millennials, the Selfie Generation, the Mobile Generation, the 21th Century Learners, Generation Me, Generation We, the Homeland Generation, the Selfie Generation, Generation Instant Gratification, Generation Reality TV, The Centennials or Generation of Artists.

This generation is now university students. But professors, who teach them, tend to use the same teaching approaches and teaching methodology as they used to do with older generations. Should they change the methods? What could be done to provide this new generation the best opportunities for progress in university studies?

This is the background of a joint project between the Faculty of Management at University of Economics and Business in Prague (VSE) and the Faculty of Economics and Management at the Norwegian University of Science and Technology (NTNU). The project has been financed by EEA grants 2014-2021: EHP-CZ-ICP-3-007 Teaching Generation of Snowflakes - New Methods and Challenges. Professors from these faculties met in a roundtable seminar in Trondheim February 2-4, 2022, presenting and discussing papers. This volume includes ten revised articles from the seminar.

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Is the Snowflake Generation More Sensitive? Research from the Teaching of the New Generation

Lucie Sara Zavadna

Abstract

According to some authors, the new Snowflake Generation is characterised by its increased sensitivity to stimuli. This article aims to discover if this corresponds to reality. High sensitivity was examined using a standardised questionnaire (HSPS) from the author Aron (1996), which was completed by university students from the Czech Republic (N=353; 41% men). Furthermore, 12 diary entries of students from a class were examined. **Results:** The Snowflake Generation proved to have a higher oversensitivity only among the women's sample (women's oversensitivity 43%). Men from this generation did not confirm a higher sensitivity (men's oversensitivity 10%). The findings suggest the characteristics that are manifested in connection with sensitivity in teaching the Snowflake Generation are: inability to concentrate, shyness, information overload, underestimation, stress and anxiety, overload of the senses, propensity for perfection and the inferior position of students. Students subjectively think they are more sensitive than their parents (40% of men, 59% of women). A large number of people have indicated that oversensitivity affects them while studying (34% men, 55% women). Diaries of emotions most often mentioned concentration problems. Students mentioned teachers who were not interesting and were also responsible for the increased stress they experienced during class or when completing tasks within classes.

Keywords

Snowflake Generation, Sensitivity, Oversensitivity, Teaching, Learning, University students.

The Snowflake Generation

The term Snowflake Generation (also Generation Snowflake) is known from the book called *I Find That Offensive* by Claire Fox. In this book, the author analysed the confrontation between Yale University students and the faculty Head of College, Nicholas Christakis. According to the book, members of Generation Snowflake are genuinely distressed by ideas that run contrary to their worldview and are more likely than previous generations of students to report that they have mental health problems (Alyeksyeyeva, 2017). Nicholson (2016) points out that the term emerged a few years ago on American campuses as a means of criticising the hypersensitivity of a younger generation. If we look close to the characteristics of this specific generation, Snowflakes are marked as overprotected children who grew up to become censorious cry-babies, arrogant, hypersensitive/oversensitive, narcissistic, self-oriented thin-skinned people endowed with an almost belligerent sense of entitlement (Fox, 2016, Lukianoff and Haidt, 2015).

For the purpose of this article, I will be working with the theory that the Snowflake Generation are those people who were born in the years 1995-2010. The main goal of this paper is to examine if the thesis about oversensitivity/hypersensitivity is true. It has been analysed with a focus on the university environment.

About Sensory Processing Sensitivity

The umbrella term for theories, which explain individual differences in the ability to register and process environmental stimuli, is called **environmental sensitivity** (Pluess, 2015). Between these theories, we can classify **differential susceptibility** (Belsky, 1997, Belsky and Pluess, 2009) **biological sensitivity to context** and **sensory processing sensitivity** (Aron and Aron, 1997). Differential susceptibility (DS) is a theory that states that those putatively „vulnerable“ individuals most adversely affected by many kinds of stressors may be the very same ones who reap the most benefit from environmental support and enrichment, including the absence of adversity (Belsky and Pluess, 2009). Biological sensitivity to context (BSC) comprises a complex, integrated system of responses designed to prepare the organism for challenge or threat (Boyce and Ellis, 2005).

Sensory processing sensitivity (SPS) is a personality trait that refers to the tendency to process stimuli and information more strongly and deeply than others (Aron and Aron, 1997; Aron, Aron, and Jagiellowicz, 2012). SPS theory suggests that sensitivity can be captured in a phenotypic temperament or personality trait, characterised by greater depth of information processing, increased emotional reactivity and empathy, greater awareness of environmental subtleties, and ease of overstimulation, thought to be driven by a more sensitive central nervous system (Aron et al., 2012; Homberg et al., 2016). This includes sensory processing of aesthetic experiences, other people's moods and feelings, loud noises, caffeine, and pain. SPS is conceptualised as a temperament trait, and not a disorder (Greven et al, 2019). Highly sensitive individuals tend to notice more subtle stimuli in their environment and are more easily aroused by this, in addition, they also respond to a lower threshold of stimuli. These individual differences are hypothesised to have a genetic basis and to be present at birth (Aron et al., 2012). Aron (1996) discusses the many advantages of being a highly sensitive person. For instance, highly sensitive individuals are described as being more empathetic, imaginative, and creative. In contrast, those low in SPS pay less attention to subtle stimuli, approach novel situations more quickly, are less emotionally reactive and behave with less reference to past experiences.

SPS also has implications for health, education and work: SPS is thought to be a significant factor impacting well-being, quality of life, and also functional difficulties (Aron et al., 2012). Previous research has shown that SPS is a risk factor for anxiety and depression (Booth, Standage and Fox, 2015; Liss, Timmel, Baxley and Killingsworth, 2005) and more frequent symptoms of ill health (Benham, 2006) and agoraphobic avoidance (Hofman and Bitran, 2007) while health problems are also related to personality factors, in particular to neuroticism (Charles, Gatz, Kato, and Pedersen, 2008).

Early studies (Aron and Aron, 1997) estimate that about 15%-20% of the population can be considered high on the SPS trait. The first measure to assess SPS was a 27-item self-report questionnaire called the Highly Sensitive Person Scale (HSPS). This scale measured positive and negative cognitive and emotional responses to various environmental stimuli including caffeine, art, loud noises, smells and fabrics (Greven et al, 2019). This inventory was originally considered to reflect a one-dimensional SPS construct (Aron and Aron, 1997). However, Smolewska et al (2006) found that the HSPS was accounted for by three separate factors, labelled as aesthetic sensitivity (AES: the awareness of aesthetics

in one's surroundings), low sensory threshold (LST: unpleasant sensory arousal), and ease of excitation (EOE: the feeling of being overwhelmed by both external and internal demands) (Grimen and Diseth, 2016).

There is a substantial evolutionary theory suggesting that the trait of sensitivity or responsiveness in any species will always be found only in a minority (e.g., Wolf et al., 2008). Several studies using the standard HSPS have found clear divisions into groups with highly sensitive individuals being those who score in the top 15%-30% depending on the study. Early studies suggested just two groups (highly sensitive and average sensitive), but the most recent research, conducted on large samples of both children and adults, supports three groups (high, middle and low or the metaphor: orchids, tulips, and dandelions; Lionetti et al., 2018; Pluess, et al., 2018).

Methods

At the beginning of the research, there was a question (1): Is the Snowflake Generation really more sensitive (hypersensitive) than those generations before? The second supplementary question (2) was: How does sensitivity affect the studies of this generation?

A standardised questionnaire (HSPS) by Aron (1996) was used to answer the first question. The original scale contains 27 items intending to measure various aspects of SPS. The items in this scale reflect various aspects of sensitivity, both in terms of external and internal stimuli, such as sensitivity to arts, life changes, other people's moods, pain, and loud noises. Scientists usually use the Likert scale 1-7. For the purpose of this paper, I used only the binary answer yes/no to each of the 27 questions to get a clear picture. The students were instructed to state their agreement to items describing various aspects of the thoughts, feelings and behaviour that a person may have.

This inventory was translated to the Czech language using a standard translation back-translation procedure (Werner and Campbell, 1970). Participants in the questionnaire were recruited by university webpages, e-mails and social media sites at universities. All participants provided their informed consent. The questionnaire was posted on the Google platform, was fully anonymous and opened from October to November 2021.

Questions of HSPS questionnaire were as follows.

1. I am easily overwhelmed by strong sensory input.
2. I seem to be aware of subtleties in my environment.
3. Other people's moods affect me.
4. I tend to be very sensitive to pain.
5. I find myself needing to withdraw during busy days, into bed or into a darkened room or any place where I can have some privacy and relief from stimulation.
6. I am particularly sensitive to the effects of caffeine.
7. I am easily overwhelmed by things like bright lights, strong smells coarse fabrics or sirens close by.
8. I have a rich complex inner life.
9. I am made uncomfortable by loud noises.
10. I am deeply moved by the arts or music.
11. My nervous system sometimes feels so frazzled that I just have to go off by myself.
12. I am conscientious.
13. I startle easily.
14. I get rattled when I have a lot to do in a short amount of time.
15. When people are uncomfortable in a physical environment I tend to know what needs to be done to make it more comfortable (like changing the lighting or the seating).
16. I am annoyed when people try to get me to do too many things at once.
17. I try hard to avoid making mistakes or forgetting things.
18. I make a point to avoid violent movies and TV shows.
19. I become unpleasantly aroused when a lot is going on around me.
20. Being very hungry creates a strong reaction in me disrupting my concentration or mood.
21. Changes in my life shake me up.
22. I notice and enjoy delicate or fine scents, tastes, sounds, works of art.
23. I find it unpleasant to have a lot going on at once.
24. I make it a high priority to arrange my life to avoid upsetting or overwhelming situations.
25. I am bothered by intense stimuli, like loud noises or chaotic scenes.

26. When I must compete or be observed while performing a task, I become so nervous or shaky that I do much worse than I would otherwise.
27. When I was a child, my parents or teachers seemed to see me as sensitive or shy.

If the students answered fourteen or more of the questions as true, they can be classified as probably highly sensitive. If fewer questions were answered as true, but extremely true, that might also justify calling a person highly sensitive. Although there are as many men as women in the population, who are highly sensitive, the theory says that when taking the test, highly sensitive men answer slightly fewer items as true than do highly sensitive women.

In addition, two questions were added to examine their subjective feeling about sensitivity: (1) Do you think you are more sensitive than your parents? (2) Does it matter to you that your sensitivity affects you while you study? At the end, a free space was left for the respondents' own statements.

The diary of emotions was used as an additional qualitative method. These diaries were in a standardised form and distributed among 12 volunteers/students. Students were recruited in the classes of two teachers at two different universities in the Czech Republic. The aim was to record selected feelings in the classroom within one week – 5 working days (see **Table 1**). Observed feelings were stress, anxiety, mood, odours, noise, fear, concentration and other disruptive elements of teaching. All the feelings were set on a Likert scale of 1-7. An illustrative example was given at the beginning of the diaries. All the participants provided their informed consent.

Table 1 – Diary of emotions. Template used in one class.

| Day and Time: | Trigger | Scales | | | | | | | | |
|---------------------------|----------------|--------|---|---|---|---|---|---|------------|------|
| | Stress | Low | 1 | 2 | 3 | 4 | 5 | 6 | 7 | High |
| Anxiety | None | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Extreme | |
| Odors | Not disturbing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Disturbing | |
| Noise | Not disturbing | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Disturbing | |
| Fear | None | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Extreme | |
| Focus | Not at all | 1 | 2 | 3 | 4 | 5 | 6 | 7 | High | |
| Other disturbing elements | None | 1 | 2 | 3 | 4 | 5 | 6 | 7 | High | |
| Other comments: | | | | | | | | | | |

Results

The questionnaire was completed by 407 respondents. All of them were university students from four different universities in the Czech Republic. From this number, 353 respondents were born in 1995-2010. These were 146 (41%) men and 207 (59%) women, who can be marked as the Snowflake Generation.

Aron and Aron (1997) state hypersensitivity is usually found in 15% to 20% of the population (The Highly Sensitive Person, 2021). Highly sensitivity means 14 or more positive answers out of 27 in the questionnaire. In this questionnaire, a total of 14 men (10% of all men) can be seen as probably highly sensitive, and moreover, a total of 89 women (43% of all women). The average response rate was 11.45 positive responses for women and 11.42 positive responses for men. The median response was 11. A total of 50 men (34%) and 114 women (55%) indicated that their sensitivity affects them during their studies. Men indicated in 59 cases (40%) that they think they were more sensitive than their parents, the same was reported by 122 women (59%). The three most frequently marked questions for both men and women are shown in **Table 2**.

Table 2 – Most frequently marked questions in the questionnaire.

| | Women | Men |
|--------------|---|---|
| Top 1 | Other people's moods affect me. (159 women) | Other people's moods affect me. (93 men) |
| Top 2 | When I must compete or be observed while performing a task, I become so nervous or shaky that I do much worse than I would otherwise. (147 women) | I am annoyed when people try to get me to do too many things at once. (86 men) |
| Top 3 | I try hard to avoid making mistakes or forgetting things. (137 women) | I am conscientious. (84 men) |

In addition, textual notes and answers were examined. Sensitivity is connected to many aspects, which are typical for university students in classes. Some of them pointed out several challenges they face during their studies. Frequently mentioned aspects related to sensitivity were as follows:

A) Inability to concentrate. The process of concentration is a very important part of what students do on a daily basis. Without the ability to concentrate, thoughts and memory could be lost. This is what one respondent stressed:

„I am not able to focus on important tasks unless my psyche is OK. On the contrary, I am withdrawing, postponing or cancelling plans at that moment. I work on peace of mind and only then can I return to my original activities.“

B) Shyness. Shyness is associated with problems in performing in public, as well as in oral examinations or class presentations in front of classmates.

„I am embarrassed; I'm afraid I'll make a mistake.“

„I don't like it when the teacher gives me a word in class if I don't know the answer. Then I feel like everyone thinks I'm stupid and laughing at me. If I know something and I'm sure about it, I'll be happy to join the discussion.“

„It simply affects me in my whole life. In certain situations, I am embarrassed and sometimes I have had, and I still have, trouble doing the necessary thing, such as asking if I don't understand something in class.“

C) Information overload. Students feel overwhelmed with information mostly at the beginning of the semester. They feel lost and afraid of failure.

„I often feel overwhelmed by the amount of information.“

„I am very sensitive and very easily overwhelmed, especially at the beginning of the semester, when in every lesson we got the termination conditions of the course. I would appreciate regular tasks rather than one long one, which is submitted at the end of the semester. It makes me feel calm because I know I'll do a little work for each class.“

D) Underestimation. One of the most frequently mentioned qualities is the underestimation of students' abilities. The students doubt that they will be able to complete the course or the study itself. They doubt their skills and face the idea of dropping out of school.

„I do not believe I can do so much. There is simply a lot and I have to think about a lot of things. I don't know what to do first. I postpone things that I don't care about, or I don't enjoy.“

E) Stress and anxiety. Students often fall into anxiety, especially at the beginning of the semester, when they are told the conditions for completing the courses. But also, during the semester, when they feel that it is too much for them and they do not manage their work.

„In stressful situations, I often succumb to stress, when I say to myself that I can't give it up, but because I have the right people around me to support me in every situation, I am able to handle any situation.“

„I have a big problem with stress and anxiety about failure... I don't like that kind of pressure - it's related to the fear of failure and the relatively high demands of studies in general (and especially the combination of more studies, work and personal life).“

„I tend to be anxious, sometimes I get stressed from small things or it happens to me that I feel stressed, but I don't know why, I have no reason, but I still feel stressed and that results in poor health.“

„Sometimes I'm so nervous about the exam that even though I know it, I can't concentrate, I feel panicked.“

„When I am spontaneously evoked during a cantor's lesson to demonstrate progress in a semester work (for example, an essay) that I could have prepared at home before, I am calmer, more spontaneous, less nervous, I can speak out of my head. However, as far as the result (mark/points/evaluation from others) is concerned, I am paralysed, and I cannot think rationally at that moment and speaking in front of others is unpleasant, very stressful for me at that moment and I cannot practically speak without paper. I have the same with sports. As far as nothing is concerned, I give very good performances.“

F) Overload of the senses. Students complain about different smells, sounds that disturb them, or just a lot of people they have to be in the class with.

„Strong odours (synthetic, sweet, sharp perfumes) cause bouts of suffocation, coughs and allergies. If there were a recommendation not to use perfumes and deodorants with a strong odour (a similar practice is in Canada) it would be good. I have seen inhalers used by asthmatics in some students, so the measure would make sense because it is a health issue for them.“

„I hate eating crispy food, whispering, typing on a loud keyboard, clicking mice, flashing fluorescent lamps, clicking hard with ballpoints, etc. The overall presence of many people around me...“

„I usually try to avoid noisy sounds, the house is almost always quiet, I often sleep with music, but only one song (one is repeated). If the weather is cloudy, I feel a decline in strength, a bad mood and more headaches.“

G) Propensity for perfection. Students are afraid of failure. They’d rather not even try things. They often train themselves to perfection so that they do not fail.

„Higher sensitivity motivates me to perform better.“

„I will not allow myself to perform poorly at school and work, I am dissatisfied when my work is not at 100%.“

„For example, if I have to drive somewhere (beginner), I have to study the route in advance, see if the road is somewhere uphill, if I have a place to park, etc. I don’t like to deal with things on the spot.“

H) Inferior position. Students do not tolerate the superior position. They don’t like when the teacher speaks to them superiorly. They want a teacher, who would be a „friend“.

„I don't like it when my teacher raises his voice, threatens punishment or says something I absolutely disagree with. I am bothered by the position of teacher versus student, where the teacher is always in a higher position.“

Moreover, a total of 12 respondents filled in the Diary of emotions entries. The highest score for each of the feelings of every respondent is shown in **Table 3**.

Table 3 – The highest score of feelings for each respondent in the Diary of emotions.

| | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 |
|----------------|----|----|----|----|----|----|----|----|----|-----|-----|-----|
| Gender | F | F | M | M | F | F | M | M | M | F | F | F |
| Stress | 3 | 1 | 1 | 1 | 3 | 4 | 1 | 2 | 2 | 1 | 3 | 1 |
| Anxiety | 2 | 1 | 1 | 1 | 1 | 3 | 1 | 2 | 1 | 1 | 1 | 1 |
| Odors | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Noise | 1 | 1 | 2 | 2 | 2 | 1 | 2 | 1 | 1 | 2 | 1 | 1 |
| Fear | 2 | 1 | 1 | 2 | 2 | 3 | 1 | 3 | 2 | 1 | 2 | 1 |
| Focus | 5 | 4 | 3 | 5 | 3 | 4 | 2 | 3 | 4 | 3 | 5 | 3 |
| Other.. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5 | 1 | 1 | 1 | 2 |

On average, students evaluated 11 different class hours. The most mentioned were focus/concentration problems. Here, the students blamed the teachers as the main cause. This was also linked to the fear of the teacher, for example, fear of not fulfilling the obligations necessary to complete the course (collecting points in class). Sometimes, the students mentioned stress and anxiety. Again, connected with the personality of the teacher. The results of the previous questionnaire were confirmed by the following characteristics with connection to sensitivity: stress and pressure, disturbance in the classroom environment and inability to concentrate. In addition to the score, students also took notes from the class. The following findings were connected to oversensitivity.

Boredom and ability to focus

„A very strict, authoritarian teacher. It's terrible boredom. I don't care at all.“

„Even though the lecture lasted 2.5 hours, I was able to concentrate fully, thanks to funny notes and practical examples.“

„I didn't like it very much. There's a spider hanging in the fifth row in the class, so I have to check on it from time to time to see if it's moving. It's still there.“

„The class was very boring; I would be able to do this activity at home anyway. It didn't add much to my will to concentrate.“

Stress and pressure

„Stress is caused by the fact that one wants to get points for an activity as soon as possible, as soon as I have them, relief comes and I start to focus more on the topic as such.“

„The teacher stood behind my back for an hour, I was afraid to make a mistake.“

„I feel pressured to say something when no one in the room is answering.“

Disturbing place

„Very disturbing [5 point of Likert scale] was the system sound of a low battery [in the classroom].“

Praise

„I've been praised for something I usually can't do at all, it has improved my whole day.“

Some other notes in the diaries often concerned specific teachers themselves. Other remarks did not concern the connection with sensitivity. Interestingly, while students often referred to concentration problems, they usually blamed the teacher himself. Most of the problems marked in the diaries concerned the teacher - boring interpretation, uninteresting material, difficult tasks, collecting points, but also praise for the student's performance. As if the students themselves completely lacked self-reflection. Diary entries were also affected by the time of the research - it was 3-4 weeks before the end of the winter semester. It would be useful to repeat the survey with diaries at the beginning of the semester when the workload is higher. Characteristics such as stress, anxiety, congestion, anger could be seen more here.

Closure

Although Aron and Aron (1997) found that the usual proportion of sensitive individuals in the population is around 15%-20%, this particular study between the Snowflake Generation has shown higher oversensitivity in only the women's sample (a total of 89 women, 43% of all women). In the women's sample, it turned out that the new generation is overall more sensitive than previous generations. It also results that a total of 14 men (10% of all men) can be seen as probably highly sensitive, which means lower than the population average. For men, a greater depth of research among the Snowflake Generation would help, for example, guided interviews or a focus group. Even though men themselves have not been proved to be oversensitive, they overall think they are more sensitive than their parents (40% men, 59% women). A large number of people have also indicated that oversensitivity affects them while studying (34% men, 55% women).

Moreover, the questionnaire further pointed to the following characteristics in connection with sensitivity in the classroom: inability to concentrate, shyness, information overload, underestimation of students, stress and anxiety, overload of the senses, propensity for perfection and inferior position of students.

In addition, the diaries of emotions most often mentioned focus/concentration problems. The students complained about teachers who make classes uninteresting. Likewise, this person is responsible for the increased stress they experience during class or when completing

tasks during classes. Stress or anxiety was also felt in class, usually in connection with completing a course or homework. The results of the previous questionnaire (HSPS) were confirmed by the following characteristics with connection to sensitivity: stress and pressure, disturbance in the classroom environment and the inability to concentrate.

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A Bibliometric Analysis of the Teaching Effectiveness in Higher Education Research (1968–2021)

Michal Novak

Abstract

Fundamental knowledge of teaching effectiveness topics and basic knowledge of the methodological aspects of quality assurance and effectivity assessments is somehow crucial to succeed. This paper provides a fundamental bibliometric analysis of the teaching effectiveness domain based on the research indexed in the Web of Science Core Collection during the years 1968–2021. Three identified clusters reveal three fundamental views on the teaching effectiveness issues. The main observation based on the overview analysis is to consider changes not only in terms of teaching as delivery of the product of the university but as a complex problem within a system of quality assurance.

Keywords

Bibliometric analysis; Web of Science; Bibliometrix; Teaching effectiveness; Higher education.

Introduction

There is an ongoing debate about significant changes in educational trends, not only at universities. While this discussion continues, there are currently students from Generation Z, sometimes pejoratively referred to as „Snowflakes“, entering higher education. This generation differs from previous generations mainly because they have already grown up with information technology, the Internet, social media, but above all, Internet search services capable of providing quick answers

to questions. This debate was further amplified with the arrival of the Covid-19 pandemic and the necessity of remote education for a relatively long period. One of the main themes of these discussions is how to make learning more effective, principally through a combination of frontal synchronous learning and remote asynchronous learning. Teaching and its effectiveness can be considered a complex issue that can be viewed from different angles, and at the same time, any ill-considered conceptual change can have both positive and negative consequences.

This paper aims to provide a basic overview of scholarly documents indexed in the Web of Science as one of the leading online scientific indexing services. The main goal is to answer questions about the volume, annual scientific production and dynamics, most relevant sources and authors, and the domain topics in teaching effectiveness research. The purpose is to gain an empirically based perspective on the evolution of the topic of teaching effectiveness in the last decades. This helps researchers overview the knowledge topics of this research, the most relevant sources and documents, source dynamics and the most relevant authors including collaboration networks.

Methods

Research data on teaching effectiveness were data-mined on 13th January 2022 from the Web of Science (WoS) Core Collection. The query term „(„teaching effect*“) in the all fields option was used. The asterisk wildcard character is used to obtain results mentioning not only the exact term effectiveness but also effectivity, effect, effects etc. The time is selected from the beginning of WoS indexation until the beginning of the year 2022. Only journal papers written in English are included. Papers from conference proceedings are excluded. The last criterion is based on WoS research areas where only papers categorised into Education Educational Research, Psychology, Business Economics and Social Sciences Other Topics were included.

The year 1968 is the year of the first indexed paper in WoS using the query. Papers published in the year 2022 are not included in the analysis for encapsulation of whole years as the year 2022 would be analysed only partially. The Web of Science Core Collection indexes papers

published in 1968–2021. These 1223 publications were analysed in R (v4.1.2) using the bibliometrix (v3.1.4) package (Aria and Cuccurullo, 2017). The main quantitative methods used are descriptive statistics and network analysis. These methods are described in more detail in the source mentioned above.

Results

Primary information about the teaching effectiveness publications published in 1968–2021 is structured in Table 1. The sum of all analysed publications is 1223. Altogether, 2885 authors published research about teaching effectiveness in 1968–2021 in 406 different sources. Based on this dilution, it can be assumed that teaching effectiveness is a comprehensive topic in many aspects.

Table 1: Main information about the collection of teaching effectiveness research

| | 1968–2021 |
|--------------------------------|-----------|
| Documents (sum) | 1223 |
| Sources | 406 |
| Authors | 2885 |
| Single-authored documents | 330 |
| Authors per document | 2.36 |
| Average citations per document | 16.32 |
| Average years from publication | 12 |

The annual scientific production of teaching effectiveness papers is displayed in Figure 1. The first article indexed in WoS was in the year 1968. The first large growth can be seen in the 1990s and then in the last 15 years with 22 new publications. The growth in publication production can be seen in this topic and other topics based on the publication sources' extensivity in the last 20 years. The year 2018 is the year with the highest number of new publications (120) in teaching effectiveness research topics.

The dilution assumption is supported based on the list of most relevant sources shown in Figure 2 and by Bradford's law (Bradford, 1934) (Table 3).

Figure 1: Annual scientific production of teaching effectiveness research

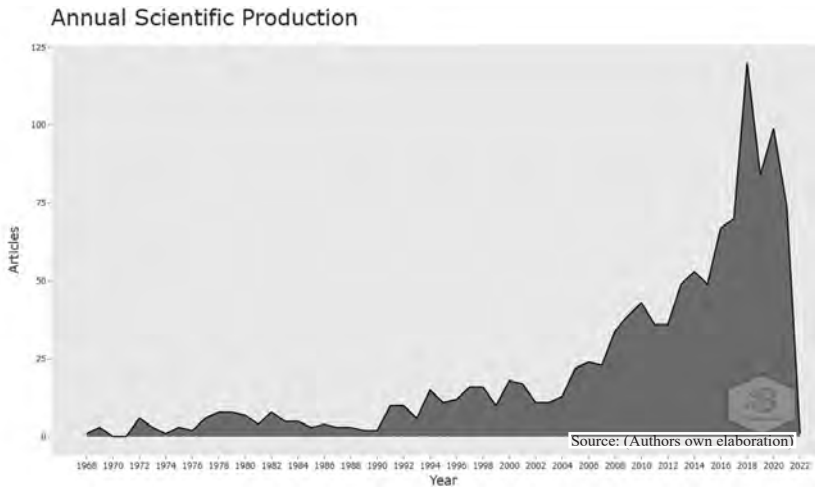
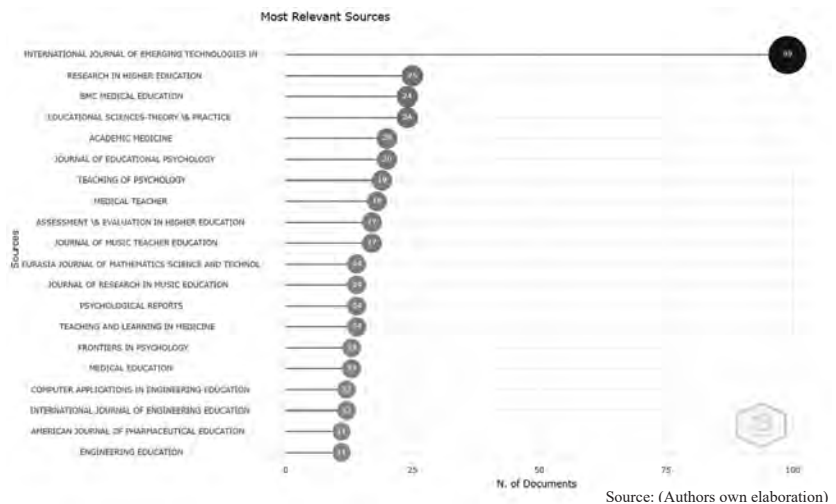


Figure 2: Top 20 most relevant sources of teaching effectiveness research



Bradford's law is a pattern that estimates the exponentially diminishing returns of searching for references in sources. If the sources are arranged in descending order of the number of articles, then successive zones of sources containing the same number of articles on the subject

form the simple geometric series $1:n_s: n_s^2: n_s^3$. The core is composed of 20 sources, which published a third of the documents of the entire analysed collection.

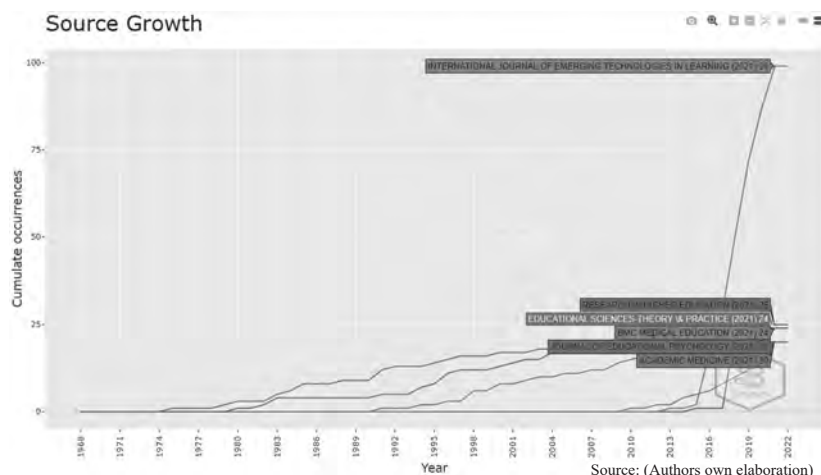
Table 3: Source clustering through Bradford’s Law – core cluster

| | Rank | Freq | cumFreq |
|---|------|------|---------|
| INTERNATIONAL JOURNAL OF EMERGING TECHNOLOGIES IN LEARNING | 1 | 99 | 99 |
| RESEARCH IN HIGHER EDUCATION | 2 | 25 | 124 |
| BMC MEDICAL EDUCATION | 3 | 24 | 148 |
| EDUCATIONAL SCIENCES-THEORY & PRACTICE | 4 | 24 | 172 |
| ACADEMIC MEDICINE | 5 | 20 | 192 |
| JOURNAL OF EDUCATIONAL PSYCHOLOGY | 6 | 20 | 212 |
| TEACHING OF PSYCHOLOGY | 7 | 19 | 231 |
| MEDICAL TEACHER | 8 | 18 | 249 |
| ASSESSMENT & EVALUATION IN HIGHER EDUCATION | 9 | 17 | 266 |
| JOURNAL OF MUSIC TEACHER EDUCATION | 10 | 17 | 283 |
| EURASIA JOURNAL OF MATHEMATICS SCIENCE AND TECHNOLOGY EDUCATION | 11 | 14 | 297 |
| JOURNAL OF RESEARCH IN MUSIC EDUCATION | 12 | 14 | 311 |
| PSYCHOLOGICAL REPORTS | 13 | 14 | 325 |
| TEACHING AND LEARNING IN MEDICINE | 14 | 14 | 339 |
| FRONTIERS IN PSYCHOLOGY | 15 | 13 | 352 |
| MEDICAL EDUCATION | 16 | 13 | 365 |
| COMPUTER APPLICATIONS IN ENGINEERING EDUCATION | 17 | 12 | 377 |
| INTERNATIONAL JOURNAL OF ENGINEERING EDUCATION | 18 | 12 | 389 |
| AMERICAN JOURNAL OF PHARMACEUTICAL EDUCATION | 19 | 11 | 400 |
| ENGINEERING EDUCATION | 20 | 11 | 411 |

Figure 3 provides an insight into the source dynamics of the top 10 most relevant sources of teaching effectiveness research. The International Journal of Emerging Technologies in Learning has had the highest rise in the last five years. Based on the title of the journal and its’ claimed scope on its homepage, this journal could be considered as currently the main source of the teaching effectiveness topic. However, as can be seen, this journal is particularly novel compared to other sources. The timeline view reveals that other journals such as Research in

Higher Education, Journal of Educational Psychology and Academic Medicine have a long history in publishing about teaching effectiveness topics and should not be omitted in a literature review. An interesting finding from this analysis is the significant number of articles published in medical journals, such as the aforementioned Academic Medicine. Other journals include BMC Medical Education, Medical Teacher, Teaching and Learning in Medicine, Medical Education, and the American Journal of Pharmaceutical Education. However, it should be considered that the Web of Science has historically been more focused on indexing research in these areas than in the social sciences.

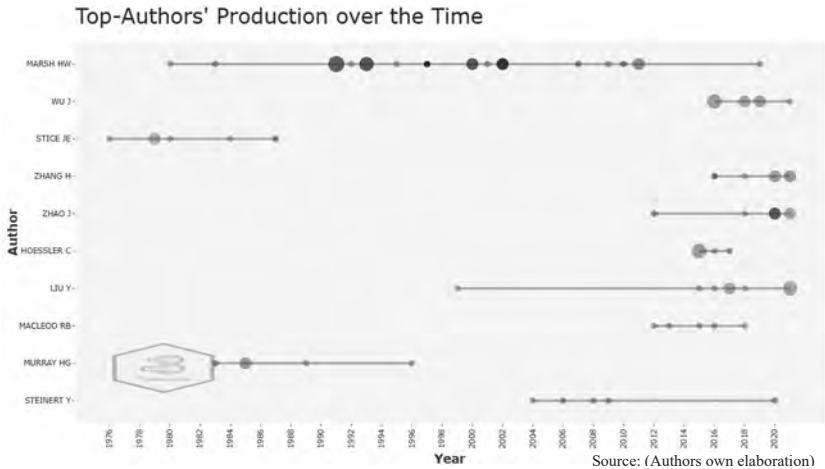
Figure 3: Source dynamics of the top 10 most relevant sources of teaching effectiveness research



The most relevant authors based on the number of articles published is shown in Figure 3. The educational psychologist Herbert W. Marsh is the most relevant author (23 publications) based on the data. Herbert W. Marsh is considered one of the most influential authors in teaching effectiveness, with more than 53,000 citations in WoS and h-index 115. He is also well known for his „Big-fish–little-pond effect“ framing reference model (Marsh and Parker, 1984).

Figure 4 shows the authors‘ publishing dynamics. Herbert W. Marsh has been publishing on this topic for over 40 years, with most of his publishing activity in the 1990s and the first decade of the 21st century. Figure 4 also shows that a significant number of authors have been working intensively on this topic in the last five years.

Figure 4 Top 10 authors – publishing dynamics



As Herbert W. Marsh has published in the teaching effectiveness domain since 1980, he also has the highest citations score and is assumed to be methodologically most influential for teaching effectiveness researchers. The total citation score in the teaching effectiveness domain for the top 10 researchers is shown in Figure 5.

Figure 5 Top 10 authors – local citation scores

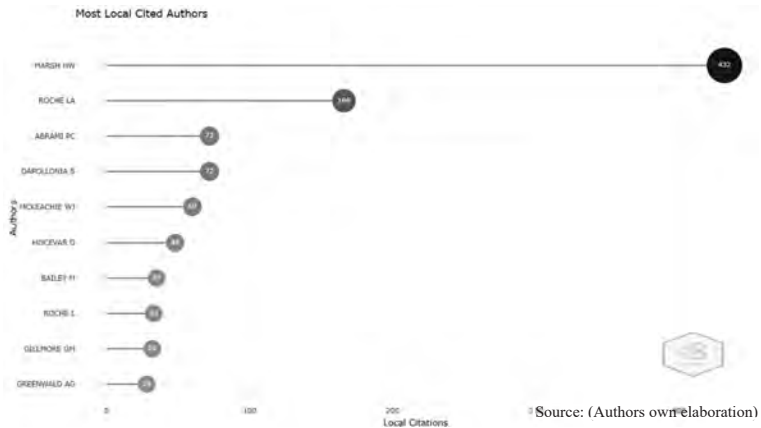
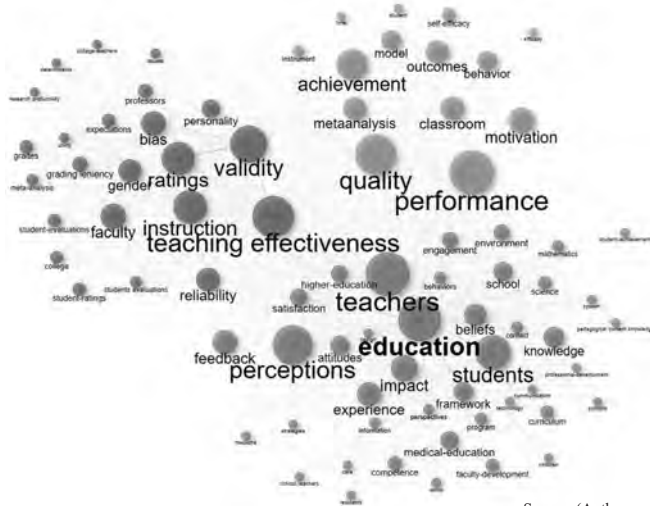


Figure 6 shows three (red, green, blue) significant clusters of words based on keywords in analysed publications. These clusters show the core domains in which researchers published up to the year 2022.

Figure 6 Topic domains in teaching effectiveness research



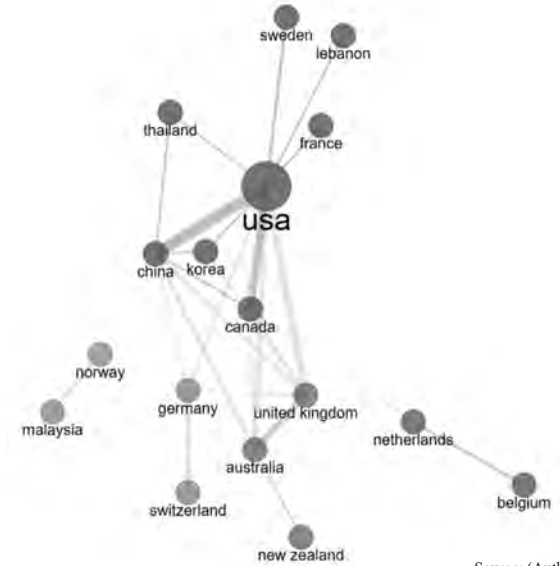
Source: (Authors own elaboration)

These three clusters reveal three fundamental views on the teaching effectiveness issues.

- Research in the first cluster (red) can be explained as the point-of-view of faculty. Authors in this cluster particularly use words such as instruction, ratings, teacher personality, reliability and validity of assessments.
- Research in the second cluster (blue) can be explained as the point-of-view of students. Authors in this cluster particularly use words such as perceptions, beliefs, satisfaction, feedback, environment and engagements.
- Research in the third cluster (green) can be explained as the systematic (complex) view. Authors use words such as quality, classroom as the interaction of teachers with students, outcomes and system performance.

Teaching effectiveness is a transcultural domain, and another interesting view on the data is the collaboration between different countries on this topic. Figure 7 shows the collaboration network of the authors' affiliated countries. The network shows cooperating researchers based mainly in the USA at top universities such as Stanford University. The hypothesis that mainly countries with English as their native language would cooperate the most could be falsified. Although there is an obvious link between USA – Canada – UK – Australia – New Zealand present in the graph, there are also other countries with high degree nodes.

Figure 7 Collaboration network of countries



Source: (Authors own elaboration)

As the Web of Science Core Collection indexes 1223 papers about teaching effectiveness research published in the years 1968–2021, the question is which papers are the most cited. Two metrics are used in Table 4 – Local Citations and Global Citations. The Local Citation metrics tell us how many citations are gained only within the analysed 1223 papers. As can be observed, the paper „Making students‘ evaluations of teaching effectiveness effective: The critical issues of validity, bias, and utility“ (Marsh and Roche, 1997) has the highest local citation score (114). The Global Citation metric (457 in terms of the mentioned paper) is based on all citations obtained within the whole Web of Science indexed papers. The second paper with the most local citations has the title „Student ratings: The validity of use.“ (McKeachie, 1997). The third paper has the title „Navigating student ratings of instruction“ (d‘Apollonia and Abrami, 1997). It can also be observed at the bottom of the table that the 20th paper with the title „Teachers‘ Mathematical Knowledge, Cognitive Activation in the Classroom, and Student Progress“ (Baumert et al., 2010) has the highest global citation score (729). Significant information from the table is also how many papers in the top 20 are written by Herbert W. Marsh. This list of publications could help researchers to obtain a deeper insight into the academic research of teaching effectiveness.

Conclusions

Universities and other education institutions want to implement changes in their curricula, learning outcomes and their effectiveness in terms of teaching in the post-covid era and with the generational change of their students. Fundamental knowledge about teaching effectiveness topics and basic knowledge about methodological aspects of quality assurance and effectivity assessments is somehow crucial to succeed. This paper provides a fundamental bibliometric analysis of the teaching effectiveness domain based on the research indexed in the Web of Science Core Collection during the years 1968–2021. The main observation based on the overview analysis is to consider changes not only in terms of teaching as delivery of the product of the university but as a complex problem within a system of quality assurance.

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Teaching Generation Z – Transit to the Google it! YouTube it! hit?

Terje Berg

Torild A. Oddane

Liv Inger Lamøy

Abstract

Generation Z is claimed to have unique characteristics requiring higher education institutions to update pedagogy to meet the needs, interests and learning styles of this new group of students. In this paper, we aim to frame and refine the topic of teaching Generation Z and outline questions for further research. Based on a literature review of academic literature on Generation Z, we summarise the findings through the lens of business administration lecturers. Two major categories are highlighted: 1) claimed characteristics of Generation Z and 2) teaching-learning strategies (active learning and use of ICT). We criticise the unanimous assumption that digital devices automatically enhance teaching and learning. Accordingly, we suggest that further research should investigate the effectiveness of different kinds of technology. We also favour holistic approaches, pointing to the need for more knowledge about business students and faculties, as well as careful consideration of contextual factors.

Keywords

Generation Z, higher education, teaching and learning strategies, active learning, ICT, business students.

1. Introduction

A new generation of students – Generation Z¹ – is currently entering higher education (Daughtrey, 2020, Jaleniauskiene and Juceviciene, 2015, Seemiller and Grace, 2017, Chicca and Shellenbarger, 2018). Generation Z is defined as a unique cohort whose needs, expectations, perspectives and aspirations are claimed to be different from those who entered universities before them (Seemiller and Grace, 2017). Generation Z are the first complete digital natives (Sheridan et al., 2014, Chicca and Shellenbarger, 2018, Dimock, 2019). They are looked upon as being creative and entrepreneurial, learning by observation and practice, having short attention spans, being used to immediate feedback, being individualistic and having insufficient critical thinking skills (Daughtrey, 2020, Shatto and Erwin, 2016, Swanzen, 2018, Vizcaya-Moreno and Pérez-Cañaveras, 2020, Jaleniauskiene and Juceviciene, 2015).

Professionals from different disciplines, such as music, language, engineering, nursing and business, are raising the need to update higher education to meet the distinct learning styles and preferences of Generation Z (Shorey et al., 2021, Chicca and Shellenbarger, 2018, Daughtrey, 2020, Barreiro and Bozutti, 2017, Deeter-Schmelz, 2014, Popova, 2017). Their argument reflects the underlying premise that current campus environments have been designed for previous generations, which do not and cannot fully meet the needs, interests and learning preferences of Generation Z students (Seemiller and Grace, 2017).

Even though student-centred learning has been around for more than 100 years (McCabe and O'Connor, 2014, p.351), most teachers in the current population are used to a teacher-centred approach (Daughtrey, 2020, Popova, 2017). However, the teaching of the future is claimed to take a student-centred approach (Daughtrey, 2020, Popova, 2017, Shatto and Erwin, 2016). According to Popova (2017, p.26), this is “the only possible way for teenagers to develop skills and abilities, promote self-expression and keep motivated during the whole period of studies”. Furthermore, current educational policies and instruction delivery practices may be at odds with the digital era and the unfolding

1 Generation Z is also sometimes referred to as ‘Snowflakes’. In this paper we consistently use the term Generation Z for two reasons: 1) Generation Z is what the academic literature deals with, and 2) Generation Z arises from a conventional typology for characterizing generations and inhibits less bias than the term ‘Snowflakes’.

societal trends (Onyema and Daniil, 2017). For instance, access to wireless internet on campus allows students to be constantly connected. This may cause intergenerational conflict between multi-tasking students and teachers adhering to the ideal of learning environments free of unwanted distractions, i.e., irrelevant screen time.

However, there is little academic knowledge about how to design learning for this generation. With this paper, we intend to explore the emerging literature on teaching Generation Z. The purpose of this literature review is to summarise contemporary knowledge represented by the academic literature on Generation Z and consider the topic through the lens of business administration lecturers. We aim to frame and refine the topic of teaching Generation Z and outline questions for further research. As teaching Generation Z is an under-researched area, this paper's contribution is twofold: 1) By exploring the emerging literature on Generation Z, we provide a picture and overview of the emergence and status of the scholarly literature on teaching Generation Z, and 2) Based on this, we sketch a research agenda that can be a further contribution to building evidence-based teaching for an enhanced learning outcome.

The remainder of this paper is structured as follows: In the next section, we clarify our understanding of Generation Z. Thereafter, we elaborate on our chosen method. In the proceeding section, we discuss the literature and close the article with some comments and suggested topics for further research.

2.Generation Z

2.1 What is a generation?

According to generational theory, the population is classified into age groups as per to the time in which they were born (Jaleniauskiene and Juceviciene, 2015, Dimock, 2019, Turner, 2015). The grouping of individuals within these generations is motivated by the belief that they each share a set of values and attitudes because of shared events and experiences (Parry and Urwin, 2011). That is, each generation is profoundly influenced by certain political, economic, cultural technological, social conditions and contextual factors (Chicca and Shellenbarger, 2018, Popova, 2017, Dimock, 2019).

2.2 One generation – many names

The latest generation is referred to by various names, including Generation Z, Gen Z, Gen-Zer, iGens, digital natives, net Generation, Zers, the @generation, pluralist generation, Post-Millennials, Tweens, eBay babies, The App Generation, Gen Tech, Gen Next, Rainbow Generation, the Selfie Generation, the Mobile Generation, the 21st Century Learners, Generation Me, Generation We, the Homeland Generation, Generation Instant Gratification, Generation Reality TV, The Centennials, Generation of Artists, and the Snowflake Generation (Jaleniauskiene and Juceviciene, 2015, Onyema and Daniil, 2017, McCarthy, 2017, Vizcaya-Moreno and Pérez-Cañaveras, 2020, CollinsEnglishDictionary, 2022). In this paper, we refer to the new generation as Generation Z (see Method, section 3 for a further account).

2.3 Age demographics

Generational cutoffs are not an exact science (Dimock, 2019). As such, Generation Z is defined by various age demographics (Shorey et al., 2021, Jaleniauskiene and Juceviciene, 2015, Chicca and Shellenbarger, 2018). For instance, Merriam-Webster Dictionary, Oxford Learner's Dictionaries and Collins English Dictionary define Generation Z as the generation of people born in the late 1990s and early 2000s, the late 1990s and the early 2010s, and between the mid-1990s and the mid-2010s, respectively. According to Chicca and Shellenbarger (2018), Generation Z generally refers to those born from 1995 onward. Coincidentally, they claim that this date aligns with the approximate time when the World Wide Web (WWW) became publicly available. In this paper, we have chosen to rely on the classification proposed by The Pew Research Center, which has defined five different generational cohorts: The Silent Generation (born 1928-1945), The Boomers (born 1945-1964), Generation X (1965-1980), Millennials (1981-1996) and Generation Z born between 1997 and 2012 (Dimock, 2019).

2.4 Attributes of Generation Z

Chicca and Shellenbarger (2018) have identified nine Generation Z characteristics from the literature: 1) Avid consumers of technology and cravers of the digital world; 2) pragmatic; 3) underdeveloped social and relationship skills; 4) cautious and concerned with emotional, physical and financial safety; 5) individualistic;

6) increased risk of isolation, anxiety, insecurity, and depression; 7) lack of attention span, desiring convenience and immediacy; 8) open-minded, diverse and comfortable with diversity; and 9) sedentary activism². Members of Generation Z are referred to as the first true digital natives, not knowing the world without the Internet (Daughtrey, 2020, Dimock, 2019, Chicca and Shellenbarger, 2018). The iPhone was launched in 2007 when the oldest members of Generation Z were 10 years old (Dimock, 2019). Tablets, smartphones, and visual media are the defining technology of this generation. Accordingly, Generation Z are technology savvy. They often use more than one device at the same time, preferring multitasking across up to five screens (Jaleniauskiene and Juceviciene, 2015, Hope, 2016). Generation Z has an affinity with Google™ information and access to more information than any other generation at their age (Seemiller and Grace, 2017). However, Generation Z's comprehensive reliance on online information is accompanied by insufficient ability to critique the validity of that information (Shatto and Erwin, 2016, Swanzen, 2018, Seemiller and Grace, 2017, Vizcaya-Moreno and Pérez-Cañaveras, 2020). Their Google™ craving may also have change their brain structure in such a way that they think and process information in fundamentally different ways compared to older generations (Jaleniauskiene and Juceviciene, 2015, Shatto and Erwin, 2017, Shatto and Erwin, 2016). For instance, their brains have become wired to understand complex visual imagery (Hallowell and Ratey, 2011, as cited in Shatto and Erwin, 2016, p.253). Most likely, the changes are related to the fact that Generation Z is the first generation to have the opportunity to be truly connected 24/7 (Jaleniauskiene and Juceviciene, 2015).

Members of Generation Z are referred to as “constantly connected”, suffering from FOMO (“fear of missing out”) (Hope, 2016). According to Shatto and Erwin (2016), Generation Z spend an average of nine hours per day on their mobile phones. They are highly accustomed to interacting, sometimes solely, in the digital world, feeling comfortable in online communication and collaboration. To establish relationships, Generation Z prefer social media to face-to-face communication. They may even favour screen time during

2 Sedentary activism can be described as “the art to take to the streets from the chair.” <https://beloved-alder.blog/2017/10/18/sedentary-activism-or-the-art-of-taking-to-the-streets-from-your-chair/>
Downloaded January 20, 2022.

social settings, as reflected in the concept of phubbing³ (Christensen, 2018). With access to wireless internet on campus, students can even stay online during lectures and find ways to spend time on social media, send instant messages etc. In a survey among 774 American university students, 94.4% reported spending irrelevant screen time during lectures (Spitzer, 2015, as cited in Christensen, 2018, p.19).

Because of their technology use, Generation Z tends to have underdeveloped social and relationship skills, such as poorer skills in face-to-face social and conflict resolutions skills (Chicca and Shellenbarger, 2018, Daughtrey, 2020). This tendency places members of Generation Z at increased risk of isolation, insecurity and mental health issues, such as anxiety and depression (Chicca and Shellenbarger, 2018). Moreover, their technology habits lead them to demonstrate a limited attention span (eight seconds) and easy distractibility (Chicca and Shellenbarger, 2018, Vizcaya-Moreno and Pérez-Cañaveras, 2020). Generation Z also bores easily when perceiving monotony and repetition and desires convenience and immediacy. They are accustomed to immediate feedback; expect any information they need to be at their fingertips; tend to take shortcuts and “surf” only for what is necessary, rather than diving deep; are careless in communication and writing; are less able to concentrate and complete tasks; are interested only in what is of immediate (personal) relevance and use; and demand quick results (Daughtrey, 2020, Hope, 2016). As a consequence, the wired environment allows for instant gratification and frustration if answers are not immediately clear (Shatto and Erwin, 2016).

Growing up in times of social, political, technological and economic uncertainty (i.e., the post-9/11 world characterised by global terrorism, online threats, and economic distress), Generation Z are pragmatic, cautious and concerned with emotional, physical and financial safety. They do not take success for granted, are not willing to take risks in their college and career choices and are likely to have alternative plans in case things do not work out (Chicca and Shellenbarger, 2018, Daughtrey, 2020). Moreover, Generation Z are ethnically diverse. Non-traditional families and exposure to different cultural perspectives make them open-minded (Shorey et al., 2021, Chicca and Shellenbarger,

³ Phubbing is a compilation of “phone” and “snubbing” (ignoring).

2018, Swanzen, 2018). They also demonstrate a high level of social awareness, and the social movements on equity and equality matter to them (Hope, 2016, Chicca and Shellenbarger, 2018). However, rather than taking an active role in social issues, they prefer engaging in sedentary activism.

Finally, Generation Z is characterised as individualistic. They prefer intrapersonal learning allowing them to work at their own pace and on their own before working with others. In addition, they are highly entrepreneurial, expecting to work for themselves during their careers (Seemiller and Grace, 2017, Swanzen, 2018).

2.5 Learning styles and preferences

Learning styles refer to how learners attain, interpret, organise, evaluate and retain information (Chick, 2010, as cited in Shorey et al., 2021). Generation Z learn by observation and experimental practice, not through reading and listening to PowerPoint® presentations (Shatto and Erwin, 2016). They tend not to use textbooks or manuals for research. Rather, there is a reliance on internet search engines and videos. Hope (2016) provides a summary of their learning styles with the following phrase: “Want to learn something? Google it. Want to learn something? YouTube it.”

Generation Z’s learning preferences resemble their learning styles. Generation Z prefer learning by doing and visually (Barreiro and Bozutti, 2017, Seemiller and Grace, 2017). They favour hands-on learning opportunities in which they can immediately apply what they learn to real life (Seemiller and Grace, 2017). Similarly, Generation Z wants to know that the concepts they are learning have broader applicability to more than just a practical example. They also prefer classroom learning over the flipped classroom (Barreiro and Bozutti, 2017, Shorey et al., 2021) and self-reflection. In contrast, they do not favour information dump, group work only or creative or imaginative processes.

Furthermore, Generation Z prefer to work alone or in virtual groups, viewing peers and instructors as valuable resources (Berge and Berge, 2019). They prefer individualised and self-paced learning allowing the option to work with others on their own terms (Seemiller and Grace, 2017, Shorey et al., 2021). Shorey et al. (2021) found that Generation Z (healthcare) students also favour engaging and visual learning environments that integrate videos,

stories, audio-enhanced PowerPoint slides, simulations, group collaborative projects, discussion boards, online quizzes and case studies in the classroom. Furthermore, they also reported the following preferences:

“...educators or practitioners who were effective communicators (i.e., approachable and friendly), enthusiastic, passionate and knowledgeable in their teaching subject, provided immediate and constructive feedback and set realistic expectations. They wished that educators could assist them on both personal and academic levels by providing emotional support and preparing them for working life” (Shorey et al. 2021, p.2).

3.Method

We based our thorough literature review, which bears some resemblance to a rapid review⁴, on a systematic literature review methodology. A rapid review is a type of knowledge synthesis in which components of the systematic review process are simplified or omitted to produce information in a short period of time (Tricco et al., 2016). A systematic review is a methodical and comprehensive literature synthesis focused on a well-formulated research question. The aim is to identify and synthesise all the scholarly research on a particular topic. As such, we deemed the literature review to be an appropriate methodology for our purpose, determining the research status in the field within a time-constraining setting.

Systematic reviews should be conducted in an unbiased, reproducible way to provide evidence for practice and policymaking and to identify research gaps. It requires documentation of the entire process from literature searches through screening and selection of studies as well as in the analysis of the studies included. Inspired by Shorey et al. (2021), we used the Arksey and O'Malley (2005) five-stage framework to conduct and report the review. Due to the nature of the review, an appraisal of the quality of the literature was not required.

4 https://www.library.cornell.edu/sites/default/files/SystematicReview_DecisionTreeMethodologies_v3.pdf. Downloaded January 18, 2022

3.1 Stage one: Identifying the research question.

To identify the research question, we started by doing a preliminary literature search in Oria; a library catalogue that allows searching through the collections of all Norwegian academic libraries, including electronic books and articles to which they are provided access. The purpose was to become familiar with the concept of “Generation Snowflake”⁵ and central teaching-learning issues pertaining to their generational attributes.

The initial research proved to be particularly useful with respect to naming the specific generation referred to; we chose to use “Generation Snowflake” in favour of “Generation Z”. We noticed that “Generation Snowflake” is an informal derogatory term for the generation of people who became adults in or after the 2010s, viewed as being less resilient and more prone to taking offence than previous generations (Collins English Dictionary). However, there is no agreement as to whether “Generation Snowflake” is linked exclusively to Generation Y, Generation Z or both groups.⁶ Another cautionary note must be made here: the approach used in this paper may omit articles of high relevance for teaching-learning when it comes to efficient use of information and communication technology (ICT), as well as active learning methods such as blended learning and flipped classrooms. The omission is due to articles not using our specified search terms yet researching this generation. Two arbitrary, yet relevant examples are the study by Foldnes (2016) of the effects of the flipped classroom, and Coovadia and Ackermann (2021) studying the effect of digital pedagogies on exam performance. Both studies were conducted on students where the vast majority can be categorised as Generation Z.

Searching Google for “Snowflake Generation” returned 8,130,000 hits, of which some revealed its status as one of Collins English Dictionary’s 2016 words of the year (Collins English Dictionary). A similar Oria search resulted in one (1) hit only; a peer-reviewed article on toleration of harassment in a UK online student culture. In contrast, a search in ORIA

5 Our study is part of the project Teaching Generation Snowflakes – New Methods and Challenges. As such, attention to the term “Generation Snowflakes” appeared as a natural starting point.

6 <https://www.biznews.com/good-hope-project/2021/05/27/snowflake-generation-millennials>;
<https://www.dailymail.co.uk/sciencetech/article-7033111/Millennials-Gen-Z-really-snowflakes.html>

for “Generation Z” returned 2,568,761 hits, of which 2,006,254 were from peer-reviewed journals⁷. Thus, the term “Generation Z” seems to be well established in research. Likewise, Dimock (2019) argues that this term Z has taken hold in popular culture and journalism. Sources ranging from Merriam-Webster to Oxford to the Urban Dictionary now include Generation Z for the generation following the millennials, and Google Trends data show that “Generation Z” is far outpacing other names when people search for information. A Google search for “Generation Z” on December 2, 2021, yielded 1,100,000,000 hits, confirming the latter statement.

Considering that “Generation Z” refers to those born from 1997 onwards, most current students, as well as those entering higher education within the next decade, belong to this generational cohort. As opposed to “Generation Snowflakes”, “Generation Z” is also a neutral term, free of immediate negative connotations. Therefore, we found “Generation Z” to be the most appropriate overall term for the students of interest in our study.

The further mapping was guided by the following research question: What are the aims, premises, contexts (educational; geographical) and methodological approaches underlying research on teaching generation Z in higher education?

3.2 Stage two: Identifying relevant studies

This stage involves identifying relevant studies and developing a decision plan for where to search, which terms to use, which sources to be searched, time span and language. To target the search in line with our research question, we examined lists of keywords in publications found in our initial research. The following words appeared as a proper basis for identifying relevant search terms: “higher education” (Jaleniauskiene and Juceviciene, 2015, Barreiro and Bozutti, 2017, Cilliers, 2021); “entrepreneurship education” (Onyema and Daniil, 2017); “education” (Shorey et al., 2021); “educational environment” (Jaleniauskiene and Juceviciene, 2015); “teaching-learning” (Barreiro and Bozutti, 2017, Chicca and Shellenbarger, 2018); “learning” (Onyema and Daniil, 2017, Shorey et al., 2021); “students” (Chicca and Shellenbarger, 2018) and “college” (Chicca and Shellenbarger, 2018). Moreover, following Shorey et al. (2021), we found it appropriate to include “iGen” and “Gen Z” as synonyms for Generation Z. To summarise, the keywords referred to led to the search terms shown in the concept map in Table 1.

⁷ The searches were conducted on December 2, 2021.

Table 1 Overview of search terms

| Population | Population | Context | Intervention |
|-------------------------|------------|--|--------------|
| Generation Z | Student | “Higher education*“ | Teaching |
| Gen Z | | College* | Learning |
| iGen* “Z generation“ | | Universit* “University college*“ “post secondary“ postsecondary | Educat* |

Furthermore, we initially defined three strict criteria for inclusion and exclusion shown in Table 2.

Table 2 Inclusion and exclusion criteria

| Criterion | Elaboration |
|-----------------|---|
| 1 Type of study | The studies must be published in peer-reviewed journals |
| 2 Language | The studies must be available in English |
| 3 Time scope | The studies must be published after January 1, 2010 |

One of the authors is a trained librarian and was hence able to recommend suitable databases and develop a proper search strategy based on the search terms and criteria referred to. Business Source Complete and Scopus appeared as the most appropriate databases, enabling searches from a variety of fields of studies. An initial, free-text search was conducted by the librarian on December 17, 2021, for different variations of the concepts “generation z“, “student“, “higher education“ and “teaching“. The different variations of each concept were combined using the Boolean operator OR, and the concepts were combined using the Boolean operator AND. After the initial search and experiments with different strategies, we discovered that some relevant articles did not include the search word “student“, so we decided to exclude “student“ from the final search. The final search resulted in 88 hits in Business Source Complete and 100 in Scopus, i.e., a total of 188 hits. This number served as the starting point for the selection of studies (see Figure 1). In a later review of the search⁸, we added variations of the concept “generation z“ to the final search and did an update based on the reviewed search. This resulted in the addition of 10 extra hits in Business Source Complete and 18 extra hits in Scopus, one of which was a duplicate. These references

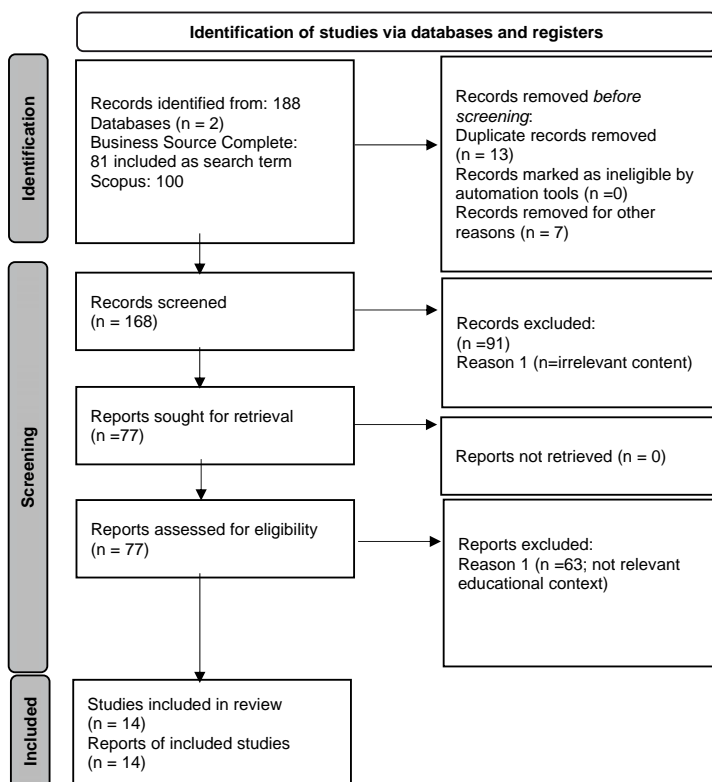
⁸ The final search was conducted on January 21, 2022.

were reviewed and discussed by two of the researchers but at this stage resulted in zero added references. For a complete overview of the applied search, see Appendix 1 – Search strategy.

3.3 Stage three: study selection

We adopted the PRISMA (Preferred Reporting Items of Systematic Reviews and Meta-Analyses) 2020⁹ flow diagram to guide the reporting of the study selection process. After 13 duplicates were removed, this resulted in 168 records ready for screening.

Figure 1 Flow diagram



Source: (Authors own elaboration)

⁹ Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

We screened the titles and abstracts in a two-step process, of which the first was a blind screening enabled by the software Rayyan, a tool for screening and selecting studies for systematic reviews. By systematically comparing our results and discussing discrepancies, we reached a consensus, excluding 91 records due to irrelevant content.

Due to the limited time span, we found it overly time-consuming to chart all the 77 studies included. Accordingly, we decided to focus on studies only involving Generation Z business students.

3.4 Stage four: charting the data

Based on the research question, we charted key information from the 14 included studies into a form developed to extract the data. As shown in Table 4 (see section 4), the extracted information includes publication details (author's name, year and country of publication, study aim, premise of study, type of study and keywords), educational context, and the topic "teaching/learning issues".

3.5 Stage five: collating, summarizing and reporting the results

We started by conducting a thematic analysis (Braun and Clarke, 2006) of the included studies. To guide our analysis, we used coloured post-it notes and/or visual maps throughout the process. Following the six-step guideline of Braun and Clarke (2006), we met regularly to familiarise ourselves with our data. After reading and re-reading the titles, abstracts, keywords and screening full texts, we noted and discussed ideas. Among other things, we observed particular attention to ICT related teaching/learning strategies among the studies. Based on our initial ideas, we developed codes for interesting features. In turn, we collated these codes into potential themes, gathering all data relevant to each potential theme (i.e., name of authors) in concepts maps. Then we started reviewing, defining and naming themes, aiming to develop sound categories and sub-categories. At some stages we worked independently, proposing blinded suggestions for further joint comparison and discussions. We discussed any discrepancies until we reached a consensus.

Having defined and named the themes, we went on to produce the report. To guide the analysis at this final stage of the review, we followed Massaro et al. (2016) to develop insights and critique and to propose future research paths and questions. We used descriptive statistics, bar graphs and tables to gain a better understanding of specific themes. In

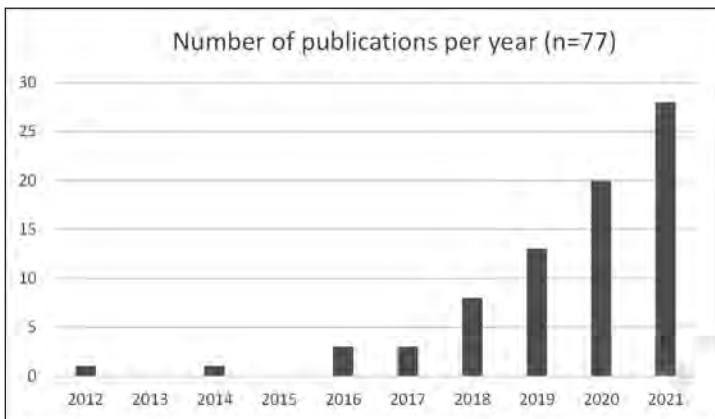
addition, the table of studies related to business students (Table 4) served as a proper basis for analysis with respect to our research question.

Furthermore, we aimed to develop a critique of the included studies. A critical approach is necessary to provide novel contributions to the field (Massaro et al., 2016). Surfacing and challenging, rather than confirming established knowledge, is a hallmark of critical social research (Alvesson and Deetz, 2000, pp.146-148, as cited in Massaro, Duma and Guthrie, 2016). In particular, our attention to underlying premises in the studies supported our attempts to develop a critique of the studies involved.

4.Results

This section presents the results from the literature review. It starts by showing the growth trajectory and the most influential outlets for the research. Then we examine the research areas covered. Figure 2 shows the growth trajectory related to educational Generation Z research.

Figure 2 Annual number of publications



Source: (Authors own elaboration)

The overall trend indicates an increase in the number of publications per year. As can be seen in the figure, the first article relevant to our study was published in 2012. The volume began to increase in 2018 and has since continued.

Table 3 shows the most influential sources in educational Generation Z research. As can be seen from the table, there is quite a variety with respect to the outlets.

Table 3 Most influential sources

| Journal | Number of publications |
|--|------------------------|
| Acta Polytechnica Hungarica | 2 |
| Business Education Innovation Journal | 2 |
| Education and Information Technologies | 2 |
| Education Sciences | 2 |
| International Journal of Emerging Technologies in Learning | 2 |
| International Journal of Interactive Mobile Technologies | 2 |
| Journal of Business Diversity | 2 |
| Journal of Higher Education Theory and Practice | 2 |
| Journal of Management Education | 2 |
| Kybernetes | 2 |
| Misc. journals with one hit | 57 |
| Grand total | 77 |

Source: (Authors own elaboration)

Ten journals are present with two publications each (listed in alphabetical order), while 57 journals are represented once. The journals are both open access as well as traditional ones. Eight out of the 14 articles forming the basis for our discussion are published in journals on the ABS list. This indicates, yet does not ensure, research quality. Looking at the journals' titles, we are given an indication that the topic is given attention in both technology and education-oriented journals. This is perhaps not surprising, given Generation Z has not yet fully come of age; the field can still be considered embryonic. Also, as acknowledged in the method section, research on Generation Z may not have been labelled "Generation Z". As such, it has not fallen under the umbrella represented by this article's search terms. Regardless, the diversity is striking when it comes to cultural contexts, ranging, for instance, from Indonesia, India, Slovenia, Slovakia, Russia and to the US, considering that educational contexts, healthcare, engineering and business schools are represented.

Based on the review of the 77 articles, a pattern of three main and 18 subcategories were revealed. The two main categories are related to 1) claimed characteristics with Generation Z, and 2) teaching-learning strategies. The third category is "other", which includes a large variety of topics that are treated by one article only.

Table 4a: Article subject to detailed review

| | | | | | |
|----------------------------|---|--|--|--|--|
| Study | 1 Hunter-Jones (2012) | 2 Deeter-Schmelz (2014) | 3 Espinosa-Pike et al. (2021) | 4 Frunzaru and Cismaru (2018) | 5 Hadi et al. (2021) |
| Type | Case | Case | Survey | Survey | User tests |
| Aim | Explores the changing worldview of a new generation of learners and the threat that this poses to the future of experimental learning | Proposes the use of Brainsharks®, a voice-over video solution, as a way to deliver class content online, thereby freeing up class time for the application of concepts | Explore undergraduate student's stereotypes of auditing | Investigate the level of entrepreneurial features and the intentions towards entrepreneurship of generation Z | Develop an augmented reality mobile application for teaching accounting ethics for university students using revenue recognition case |
| Premise | The world view of new generation of learners implies a threat to experimental learning | Gen Z traits result in a new set of learning preferences instructors should consider when developing and delivering course content | Undergraduate students' perception of auditing is influenced by stereotypes | The level of entrepreneurial features and the intention towards entrepreneurship (ITE) of generation Z students may differ from those of other generations | Faculties face challenges in gaining the millennials and Z generation's interest and attention, who are generally digital savvy, when teaching accounting ethics |
| Teaching/learning | Future experimental learning | ICT focus Online tool Brainsharks® | Irrelevant with respect to teaching/learning issues Example of study involving business students | Irrelevant with respect to teaching/learning issues Example of study involving business students | ICT focus Augmented reality-based learning media |
| Keywords | "Learner disengagement Experimental learning Educational change Ethnography" | "Gen Y, Z Online content Brainshark Video solution Teaching tool Classroom innovation" | "Business students *Auditing *Auditors *Accounting education Student attitudes Undergraduates Business studies Proximity Stereotypes Students' perceptions" | "Gen Z students Individual entrepreneurial orientation, intention towards entrepreneurship" | "Augmented reality Business ethics learning media mobile application Technology acceptance model" |
| Educational context | Marketing students | Sales management students | Undergraduate business students | Students in the fields of marketing and communication | Business schools |
| Country | GB | Kansas, US | Spain | Romania | Indonesia |

Table 4b: Article subject to detailed review

| | | | | | |
|----------------------------|--|---|--|--|--|
| Study | 6 Kuprina et al. (2016) | 7 Machov et al. (2021) | 8 Maloni et al. (2019) | 9 McCarthy et al. (2021) | 10 Nayar and Koul (2020) |
| Type | Testing of methodological tools | Empirical | Inferential statistics (p.21) | Surveys | Mixed |
| Aim | Address relevant problems of educational migration flows both in the real and virtual environment | Assess the development of Generation Z competencies applying innovative educational methods in the era of Industry 4.0, as these competencies will be essential when entering the labour market | Assess business students' career work expectations | Explore and understand the effectiveness of podcasting collaboration and using technology to forge interactivity in marketing education. | Critically evaluate the learning effectiveness and engagement of blended learning tools in a management course of negotiation skills |
| Premise | Generation Z, requires the creation of entirely different instruments for implementing the educational process when using virtual platforms | The current period in which we live is influenced by the rapid growth of knowledge | We need to understand the work values/career expectations of Gen Z to effectively engage students in the classroom and in the career development process | Podcasts are an increasingly popular form of entertainment and education | The study addresses the dilemma brought to light through literature regarding the learning effectiveness of roleplays as a teaching tool in negotiation training |
| Teaching/ learning | ICT focus Virtual platforms | ICT focus Gamification | Irrelevant with respect to teaching/ learning issues Example of study involving business students. | ICT focus Podcasts | Learning effectiveness and engagement of blended learning tools |
| Keywords | education, educational migration, modeling, virtual technologies, feedback, cost effective, incentive effect, Generation Z, cultural and cognitive characteristics, highly skilled migration | "competence gamification generation Z innovative teaching methods labour market" | "Work values Generational theory Millennials Generation Z Management education Career development" | | Blended learning tools; Classroom teaching; Higher engagement; Negotiation skills; Roleplay |
| Educational context | University of Economics in Bratislava | Faculty of Economics of the J. Selye University in Komarno | Business students at 7 different U.S. universities | Marketing education | Management course in negotiation skills |
| Country | Slovakia | Slovakia | USA | USA | India |

Table 4c: Article subject to detailed review

| | | | | |
|----------------------------|---|--|---|--|
| Study | 11 Schwieger and Ladwig (2021) | 12 Thacker (2016) | 13 von Freyemann and Cuffe (2020) | 14 Wood et al. (2021) |
| Type | Theoretical | Theoretical | Case study | Survey |
| Aim | Propose a method by which educators may address the changing learning proclivities of MIS student populations while simultaneously preserving content focus and objectives | Discuss how to prepare sales courses for Generation Z | Determine whether adding the higher-order effort would support the efficacy of such a move, namely adding cooperative live problem-based learning (PBL) projects driven by outside business partners (p.31) | Examine the narcissism of Generation Z |
| Premise | Students in the 21st century management information systems (MIS) classroom are seeking not only conceptual understanding but also methods of communicating that are familiar and accurately reflect how they learn and acquire knowledge | Generation Z learn, communicate, and express themselves in very different manners compared to other generational groups. As such, we have to grasp the values, learning styles, and expectations expressed by this group | While there is much support from the literature on using such higher-order modalities, significant grade improvements versus other forms have not been consistently identified. (p.26) | Elevated narcissism among business students |
| Teaching/learning | ICT focus Incorporation of social media tools into curricula to effectively educate the current student body | Teaching strategies need to include small-group activities, games, and simulations. It is also essential to create group integrations that include functions of networking, peer-to-peer coaching, and collaborating with other people | Problem-based learning | Irrelevant with respect to teaching/learning issues Example of study involving business students |
| Keywords | Social media, Gen Y, Gen Z, Soft skills, Understanding by Design, Course development models | "*Sales *Business success *Business education Curriculum Generation Z Education" | "Active learning Problem-based learning Social learning Generation Z Project method in teaching" | "Business education Generation Generation Z Higher Education Millennial Narcissism" |
| Educational context | Management information systems; Graduate level MBA course | Professional sales education | Marketing principles classes | Business students |
| Country | USA | USA | USA | USA |

The articles presenting and discussing Generation Z aim at mapping traits, values, attitudes etc., as well as presenting and taking these attributes for granted. Other articles depart from these traits etc., either documented or taken for granted, and investigate questions related to

learning styles, needs or preferences. Many studies make claims about Generation Z as “digital natives”, do not relate this to other generations. Interestingly, there are also attempts to see how digital competences are aligned across generations.

Considering the other main category, teaching-learning strategies, three main sub-categories were revealed. One discusses different aspects of active learning. In this, one stream of discussions can be related to blended learning, while the other can be related to a flipped classroom. The second main sub-category is ICT related issues. These articles take for granted that technological devices should be applied because Generation Z are digital natives. The discussions circle around different kinds of learning media, i.e., digital devices possibly suitable for teaching or learning. The third subcategory takes the lens of the learning environment.

The category that we have labelled ‘other’, ranges from discussing ethics in education, Generation Z as entrepreneurs, coping strategies, workforce requirements, narcissism, how Generation Z assess the quality of their country’s educational system, as well as, and of particular interest, critical approaches to the generational perspective. Table 5 illustrates our categorised topics.

Table 5 Categories discussed in the articles

| Main category | Sub-category 1 | Sub-category 2 |
|---|---|---------------------------------------|
| Generation Z | Traits | |
| | Values | |
| | Digital competences | Gen Z Intergenerational levels |
| | Expectations | |
| | Attitudes | |
| | Learning styles | |
| | Learning needs | |
| | Learning preferences | |
| Teaching-learning strategies | Active learning approaches | Blended learning Flipped classroom |
| | ICT | Learning media |
| | Learning environment | |
| Other issues | Narcissism | |
| | Entrepreneurship | |
| | Ethics | |
| | Coping strategies (stress) | |
| | Work force requirements | |
| | Perceptions of professions/Work values | |
| | Perception of quality of higher education | |
| Critical approaches to the generational perspective | | |

As we are mainly interested in the possible consequences that Generation Z characteristics may have on teaching and learning in business schools, we delve into the details for 14 out of the 77 articles listed in Table 4. These will form the basis for the following discussion. The discussion aims to paint a picture of the insights given by these articles, bringing critique to the table, as well as pointing the discussion to the next paragraph.

The insight given by the articles departing from a business student setting corresponds to Table 5, particularly Teaching-learning strategies with an emphasis on the use of ICT. For instance, McCarthy et al. (2021) outline how the use of podcasts can encourage communication and interaction among marketing students across different universities. This teaching approach intends to move students from passive consumers to active producers of knowledge. In addition to the marketing skills, this may foster meta-learning related to collaboration. Acknowledging that teaching a course is not only about the course knowledge itself, but also enhancing skills not given by the curriculum, is important. However, activating students does not depend on specific digital technologies; this has always been possible.

Another angle is taken by Schwieger and Ladwig (2021), who suggest how the systematic use of social media can be applied without detracting from the learning process. This is a statement that should be obvious, but it is easy to lose sight of. The overall purpose of any teaching technology (in its broadest sense; chalk and blackboard is also a technology), should be to enhance the learning outcome. Given this important message, it is somewhat strange that the authors depart from the point of view without problematising the learning outcome as such. They seemingly assume that because digital devices and social media are an integrated part of the daily life of Generation Z, these devices should also be applied in a teaching setting. Moreover, Kuprina et al. (2016) point to the fact that ICT is not a sufficient factor for improving quality. They claim that different ICT tools could be a good helper for individualised approaches to learning, which resonates well with the claim that Generation Z has a more individualistic orientation. However, the principle of customised learning is nothing new, and, as such, linking it to one specific generation does not particularly add any new insight.

Related to this, we can consider Hadi et al. (2021), who investigate teachers' intentions to use AR technology for teaching business ethics. They claim high intention to use. However, these authors take it for

granted that Generation Z have certain learning preferences and that AR is urgently needed so that students do not get bored while being taught business ethics. Indeed, the article gives a detailed description of how the device was developed. However, it does not in any respect document the effect on learning. This also accounts for the approach taken by Deeter-Schmelz (2104). The article exemplifies how one specific digital tool can be applied to create voice-overs and possibly music to PowerPoint presentations. While such examples are interesting, this article also fails to document why Generation Z necessitates the content to be delivered in this way.

The stream of literature mentioned above that discusses teaching-learning in light of different active learning approaches is sparse. Yet, there are several interesting points raised. For instance, von Freymann and Cuffe (2020), who analysed cross-sectional data from 2006 to 2018, document how problem-based learning enhances higher-order active learning modalities. Nayar and Koul (2020), on their side, find how blended learning enhances classroom engagement. In a similar vein, Hunter-Jones (2012) claims that experimental learning may be a suitable device for active learning, thereby reducing student disengagement. These articles are not without shortcomings; von Freymann and Cuffe (2020) rely on exam data as a proxy for learning outcomes with exams created by the authors. Both Nayar and Koul (2020) and Hunter-Jones (2012) depart from the assumption that traditional approaches have shortcomings, and that new generations must be treated differently. For instance, Nayar and Koul (2020) implicitly claim that roleplays, as opposed to blended learning, do not support soft skills without documenting why. Thacker (2016) aims to give guidelines for optimising teaching in a sales management course. Yet, he claims without further notice that constructivist learning needs to be applied. Interestingly, as opposed to Hunter-Jones (2012), he does not see the need for Generation Z to be spoon-fed; one trait associated with the generation.

We will only briefly examine the last category, “other”. Wood et al. (2021) find that Generation Z business school students have high levels of narcissism. Even though it is hard to grasp how this can be implemented in teaching and how it is affecting the learning process, it is one contribution to understanding students. A study by Maloni et al. (2019) can be interpreted similarly, as they find a major discrepancy between the students' work values and what their faculty considers to be important. Machov et al. (2021) also contribute to the students' view of the labour market. (Even though the article claims to be about gami-

fication as a means for developing competences that are labour market relevant, this is not present in the article at all). Both Espinosa-Pike et al. (2021) and Frunzaru and Cismaru (2018) add knowledge to the picture about Generation Z, yet do not discuss teaching and learning. The former article maps the generation's image of auditors, which is positive, yet has not changed from previous generations. The latter article investigates whether students are interested in starting their own business, something which they are, and this depends on the entrepreneurial education provided. This finding, with the perception depending on specific courses, resonates with Espinosa-Pike et al. (2021) finding that the satisfaction with the students' first accounting course reflects their view of auditors.

5. Discussion

In this section, we discuss the findings from our review and structure the discussion along two axes: 1) the studies' premise for teaching/learning, and 2) contextual factors.

The main premise, running through the articles in the literature review, is that Generation Z are "different" to previous generations and that educators should adapt to prepare for this unique group of students. The unanimous argument is that Generation Z students are digital natives and that educators, as a natural consequence, must go digital. But as Quattrone (2016, p.1) rhetorically asks in his article about management accounting and digitalisation: "Management accounting goes digital: Will the move make it wiser?" In our context: Do digital devices automatically enhance learning? Therefore, it is necessary to discuss the role of technology and clarify whether ICT is a goal or a means for teaching and learning. Similarly, we need to discuss the underlying assumption of technology as an unconditional good in higher education. Furthermore, being a digital native does not automatically imply being digitally competent (Berg, 2018).

It is frequently claimed that technology is necessary to engage students, otherwise, lectures will become boring. However, this presumption does not consider the difference between active learning and activity in class. This is an important distinction because active learning is not a straightforward concept (Kane, 2004). We rely upon the definition of active learning as any instructional method that engages students in the learning process (Prince, 2004). By this, we perceive active learning as

something that requires students to do meaningful learning activities and reflect on what they are doing, i.e., active cognitive processing. However, while promoting active learning is generally beneficial, the success of an active learning methodology depends not only on methodology but ultimately on the constantly evolving dialectical relationship between methodology and learners, mediated by the educator (Kane, 2004). Activity in class, on the other hand, may for instance just be physical activities without much reflection. Taking notes may be both active cognitive processing and an activity in class, while the uncritical reproduction of a teacher's notes may not generate learning. The same holds for taking part in a quiz delivered by a digital device.

Moreover, we need to challenge the positive bias of ICT use in higher education and discuss the negative sides of going digital. First, when digital devices are present in the auditorium, there is a chance that students may get lost in irrelevant screen time during lectures, i.e., taking the opportunity to check out social media or newspapers. However, being conscious of this potential problem can allow it to be dealt with (Christensen, 2018).

Furthermore, we observe an interesting paradox between the imperative of “going digital” and the negative health effects related to the technology habits of Generation Z. Noting that extensive technology use may lead to poorer social and relational skills, increasing the risk of isolation, insecurity and mental health issues (Chicca and Shellenbarger, 2018), uncritical adaption to the technology habits of Generation Z may be harmful. The ongoing Covid-19 pandemic, which has brought concepts such as Zoom fatigue and mental health issues into focus (Sangster et al., 2020), serves as a reminder of the need for careful considerations regarding the digital aspects of teaching/learning. Interestingly, recent studies identify soft skills and psychological safety as the most critical features of post-pandemic leadership and work life. As such, designing analogue learning environments supporting face-to-face interactions, awareness and development of collaborative skills, proves to be an important aspect of teaching Generation Z.

Last, but not least, when technology is discussed, it implies different kinds of ICT in each case. This is, of course, not particularly strange, yet technology can be any device applied for teaching purposes; as noted above, chalk and blackboard are also devices. This implicit definition of technology resonates with a presumption that existing teaching largely consists of one-way monologues. This may be correct, but do we have more than anecdotal evidence for this?

Moreover, there seems to be a call for student-centred learning. While educators should know their students at all times, and student-centred learning has been around for a long time, technology seems to be the holy grail for putting the student into the spotlight. It is hard to disagree that students are the ones supposed to learn. But it is also important to acknowledge that learning does not take solely place in the auditorium. The blended learning called for has gained growing interest over recent decades (Arbaugh et al., 2010) and acts as a means to activate students and thus enhance the learning process. Blended learning means to use a variety of different didactical approaches, both inside *as well as outside the auditorium*. With this as a point of departure, the educator might be aware of designing what we will define and label as a total *learning package*, where different technologies may play a natural role. Digital devices, for instance, films prepared for being watched in advance of attending the classroom and discussions in class, may go hand-in-hand. Digital devices may also allow educators to regulate students' progress in their learning: by taking a gamification approach, one is not allowed to enter the next level (of knowledge) before certain tests are passed.

Departing from the learning package approach, we see a need for taking contextual factors into account. First, our unit of analysis is business school students. Narcissism is found to be more prevalent for business (and economics) students than for other groups of students (Vedel and Thomsen, 2017). Yet, this may differ across different cultures and may not be a universal trait for business students. Indeed, the generational approach is questioned by, for instance, Berge and Berge (2019), who claim that focusing on intergenerational values is a more fruitful approach than targeting the generational differences. In a similar vein, Chicca and Shellenbarger (2018) are cautious about the fact that generational characteristics may be stereotypes based only on anecdotal evidence. This may also hold for other contextual factors dependent on geography. Hence, the learning environment may differ a great deal, and when it comes to designing the learning package, one size does probably does not fit all. This may make it difficult to ensure constructive alignment, which is an important prerequisite for ensuring learning outcomes (Biggs and Tang, 2007). In such a setting, a holistic approach to education as suggested by Swanzen (2018) may be appropriate. Her approach considers that academic development, i.e., overall learning by the student, is influenced by several factors impacting teaching and learning. This ranges from university infrastructure to the faculty's skills, as well as the students' prerequisites for learning.

Hence, the conditions for the learning outcome are not restricted to the students' characteristics but also to the faculty and the strategic direction outlined by the institution and curriculum.

6. Concluding remarks

After reviewing the articles above, what struck us most is the taken-for-granted notion that Generation Z are digital natives, and hence digital devices are the solution to “better” teaching as well as the learning outcome. However, this ignores the fundamental question: What is good teaching for the learning outcome, and what does contemporary research tell us about this relation? We do not reject the use of digital devices for learning purposes but question this uncritical approach to the learning process. Indeed, we need more knowledge about business students as well as their faculty, and our study supports the claim by Seemiller et al. (2019) that studies on Generation Z are sparse. We suggest that further research should investigate in detail the effectiveness of different kinds of technology, in its broadest sense, not only digital devices. However, some studies should indeed explore and compare the appropriateness of different ICT tools with respect to fulfilling learning outcomes. Such a study could benefit from a scoping review approach. Based on this, the students' learning preferences can be mapped through an applied mixed methods approach in the shape of, for instance, combining surveys and focus group interviews. The latter will particularly enable researchers to capture a deeper insight into Generation Z.

In addition, the pedagogical and didactical skills of the faculty also need mapping to find out if there is a gap between the students' preferences and the educators' pedagogical competences, and hence make it possible to implement effective teaching as a prerequisite for learning. As we challenge the sole generational view and support thinking in terms of contextual factors, we also suggest finding out more about attitudes towards being a student; i.e., what are the expectations of oneself as well as educators and fellow students? There are indications that more and more students have full-time jobs, downgrading studying to “something on the side”. This trend centres on flexibility; flexibility that may undermine the educators' pedagogical approach. Based on our own teaching experiences with business students, we also observe that an increasing number of students appear to have a sole instrumental approach to education; it is a craft one should be trained in, conflicting with the educators' aim to

educate people. (As noted by Ferguson et al., 2010, one trains animals whilst one educates people). Of course, regarding teaching Generation Z students, we face the basic challenge of finding the line between adapting and capitulating to the perceived preferences of today's youth. Finding a balance between giving students what they want and what they need for long-term success is important. Regardless, we recommend taking a holistic learning package approach to teaching in higher education. Accordingly, we generally call for studies acknowledging geographical, cultural and educational contexts. Due to the ongoing research collaboration on Teaching Snowflakes, we call for comparative studies between Czech and Norwegian universities.

As holds for most studies, this one also has its shortcomings, as elaborated on in the method section. Yet, it is our sincere opinion that this article brings a new insight into teaching Generation Z at business schools and provides ideas for further research.

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Appendix 1 – Search strategy

Documentation of the search strategies adopted in Business Source Complete and Scopus.

Free text searches were conducted in both databases. In Business Source Complete free text search, unqualified search consists of the fields: all authors, all subjects, all keywords, all title info (including source title) and all abstracts. To make the searches comparable, the default search in Scopus was chosen. This consists of the fields title, abstract, keyword.

| Database | Search string |
|---------------------------|---|
| Business Source Complete: | ((“generation z”) OR (“gen z”) OR (igen*) OR (z generation*)) AND (universit* OR college* OR (“higher education*”) OR (“University College*”) OR (“post secondary”) OR postsecondary) AND (teaching OR learning OR educat*) |
| Scopus | ((TITLE-ABS-KEY(“generation z”) OR (TITLE-ABS-KEY(igen*)) OR (TITLE-ABS-KEY(“z generation*”) OR (TITLE-ABS-KEY(“gen z*”))) AND ((TITLE-ABS-KEY(“higher education*”) OR (TITLE-ABS-KEY(college*)) OR (TITLE-ABS-KEY(universit*)) OR (TITLE-ABS-KEY(“University College*”) OR (TITLE-ABS-KEY(“post secondary*”) OR (TITLE-ABS-KEY(postsecondary))) AND ((TITLE-ABS-KEY(teaching)) OR (TITLE-ABS-KEY(Learning)) OR (TITLE-ABS-KEY(Educat*))) |

Sport as a predictor of the study habits of snowflakes

Stanislav Tripes

Abstract

This paper aims to identify how sports behaviour and history shape the personality, study habits, and requirements of current university students. The data were collected using focus groups with students of the Faculty of Management, Prague University of Economics and Business. This qualitative study is based on Interpretative Phenomenological Analysis to gain feelings and experiences. The results showed that parents play an essential role in whether their child acquires the characteristics of a generation of snowflakes. Sport prevents acquiring these characteristics. Snowflake characteristics shape their study habits, respectively the principles of behaviour, while their educational requirements are influenced by social networks. Videos and podcasts became important study material.

Keywords

Family, Sport, Social Networks, educational requirements.

Introduction

The melting point of a snowflake is over 0°C, but what is the melting point of the current university students? The generation born in 1995 – 2010 is called the Snowflake generation. The challenge to university teachers is teaching this unique generation, which melts when they step out of their comfort zone (Haslop et al., 2021). This generation is typical by its anxiety, the need to be warned of danger, to be perfect and constantly praised or rewarded, while living on social networks, and constantly sharing content and commenting on everything. This paper

aims to explore the study habits of the snowflake generation students and find a connection between sport and their study habits. This qualitative paper uses Interpretative Phenomenological Analysis.

The snowflake generation has specific characteristics. According to Haslop et al. (2021), this generation is overreacting and fragile; psychologists describe them as neurotics and oversensitive crybabies who cannot hold out for anything (Alyeksyeyeva, 2017; Brezina, 2020; McIntosh, 2020). Snowflakes constantly demand to be praised for confirming themselves in their perfection. Perfection can be viewed from two perspectives. Some make a great effort to achieve it, and others perceive themselves as perfect without effort. Perfectionism results in narcissism (Giurgiuman and Buzgar, 2019) and selfishness; they perceive themselves to be outstanding and exceptional, and the whole world rotates around their originality (Brezina, 2020) and that they face reality with aggression (Giurgiuman and Buzgar, 2019). Typical for snowflakes is their digital life. They use the social network, which creates their outside reality of the world (Adámek, 2020); they post their lives and almost everything such as pets, food, etc. (Alyeksyeyeva, 2017; Barnett, 2017). Their whole life is about being online, and they perceive the internet and social networks to be an essential part of life (Lazarevič, 2017). They present their own opinions on networks (Detweiler et al., 2018; Strmiska, 2018), perceive the necessity of political and gender correctness (Haslop et al., 2021), and finally, social networks have become a toxic place full of aggressive discussions about social and political topics (Finn, 2017). They perceive rude behaviour on social networks as normal (Haslop et al., 2021; Sandford et al., 2008)

This generation has grown up with their parents' open and caring approach (Brezina, 2020). Their parents have a duty to warn them if there is a danger (Brezina, 2020; Murray, 2018) and to protect their children from criticism while praising them all the time (Alyeksyeyeva, 2017), which means they are not able to absorb criticism and are then depressed (Lazarevič, 2017). They are used to being in a comfort zone, are scared by everything outside it (Barnett, 2017; Giurgiuman and Buzgar, 2019; Malá, 2021) and must remain in it. The border between their comfort zone and their stress zone is very close (Strmiska, 2018). The zone of learning is minimal or missing.

The education of snowflakes is not an easy task because of missing the learning zone and specific requirements. They require the teacher to have a leadership style that better reflects their needs (Finn, 2017), especially the collaboration with the teacher for a more straightfor-

ward interpretation and understanding of knowledge (Cunningham and Sagas, 2008). A close relationship with the teacher and a sense of security and safety are essential (Malá, 2021). The teaching style should be based on a customer and experiential approach (Wright and Raaper, 2019). It is essential to find out regularly whether the teaching style meets their expectations (Detweiler et al., 2018). Snowflakes appreciate impunity for freedom of speech (Baer, 2017; Haslop et al., 2021), but some topics are better not to open. They demand a warning in advance in the case of topics that could disturb their mental well-being (Brezina, 2020; Strmiska, 2018). The foundations of university freedom are thus lacking, and the role of universities is changing to educational hobby centres (Alyeksyeyeva, 2017)

Teaching habits and requirements are closely connected to personality. Personality is not formed by age but by experiences (Brezina, 2020), especially traumatic experiences that help us learn and move forward (Baer, 2017). These experiences are gained from the social groups where the person lives. The first social group is family although lately, it has become the personality shaped by the education system and sometimes by sports activities. All these social groups impact personality development, and in the case of the snowflake generation, it is also influenced by social networks.

Parents play an important role in sports participation (Knight et al., 2016; Ross et al., 2015; Smoll et al., 2011). In general, parents perceive children's participation in sports as an essential aspect of life, teaching them competition, the ability to lose and building relationships with others. Sport also teaches concentration, responsibility (Stefansen et al., 2018), fairness and regularity (Harwood et al., 2019). Organised sports teach children to be part of a social group and independent of their parents (Stefansen et al., 2018). In addition, sport has many benefits, including the development of a healthy lifestyle (Bailey, 2006; Faught et al., 2017; Lower et al., 2013), stress reduction (Dogan, 2020; Lower et al., 2013), physical strength (Bailey, 2006; Lower et al., 2013), better academic achievement (Byrd, 2007; Faught et al., 2017; Lower et al., 2013; Sandford et al., 2008), social benefits in the form of community development (Lower et al., 2013; Sandford et al., 2008; Yanik, 2018) and new environment adaptability (Yanik, 2018). Parents perceive all this as essential and therefore support their children in sports. For a child to be adequately motivated, the parent must choose the appropriate sport and provide the necessary support and involvement to increase motivation (Harwood and Knight, 2015).

The motivation of young athletes is influenced not only by the desire to be better but also by the support of autonomy by the coach and parent (Atkins et al., 2015; Clancy et al., 2016). This motivation can be further divided into internal and external motivation, which is influenced by several factors – the level of competition (which is still influenced by gender, sport, context, age, etc.), the type of sport (team vs individual) (Roberts and Treasure, 2012), enjoyment of sports, psychological state, condition, expectations of others, team cohesion and their own ego (Zach et al., 2012). The Self-Determination Theory (SDT) and the Achievement Goal Theory (AGT) are also essential aspects for motivating athletes (Clancy et al., 2016; Lower et al., 2013). The SDT assumes that individuals develop during life depending on the social context that further motivates them. Social factors (e.g., cooperation, choice) facilitate the process of integration and the body's will to support self-determination if it satisfies the three innate psychological needs – autonomy, experience and belonging to others. Thus, internal and external factors leading to motivation/demotivation are manifested here (O'Boyle et al., 2015; Roberts and Treasure, 2012). In contrast, AGT is based on two dimensions, respectively ways of formulating goals: task-oriented and ego-oriented. The first is taken positively and is perceived as a desire to learn something; the second is taken negatively and perceived as the best in the group. It achieves the goal that influences other attitudes towards sport (Roberts and Treasure, 2012).

Parental involvement in sport is reflected in the investment of time, energy and money in their children's sports (Ross et al., 2015; Stefansen et al., 2018), for example, the purchase of materials, etc. (Knight et al., 2016; Ross et al., 2015). Support can be factual, emotional and informative (Harwood and Knight, 2015). It includes driving and participating in training and competitions, giving advice and purchasing material (Knight et al., 2016; Ross et al., 2015). Parents perceive their support as a symbol of being responsible parents, which creates a much deeper relationship with their children (Stefansen et al., 2018). However, parents who experienced support from their own parents in their childhood pass it on to their children, regarding it as usual (Funk et al., 2008; Rowe, 2015; Stefansen et al., 2018).

Parental involvement is also essential for achieving goals (Harwood and Knight, 2015; Weltevreden et al., 2018). However, it is necessary to distinguish whether parents support or push for results (Harwood et al., 2019; Ross et al., 2015). Too ambitious parents pro-

ject their desires and unfulfilled goals onto their children (Dorsch et al., 2016; Knight et al., 2016). Once children feel heavy pressure from their parents to perform, this leads to a negative attitude towards sport (Knight et al., 2016; Straub, 2018). This is primarily due to directive behaviour (Lee and MacLean, 1997). It is crucial to communicate the child's goals and their parents to be in harmony (Harwood and Knight, 2015; Knight and Holt, 2014). Parents and children have to find a compromise between learning goals and performance goals (Seijts et al., 2004; VandeWalle et al., 1999). The relationship between goal orientation and performance outcomes was identified, and the learning goals are better than performance goals (VandeWalle et al., 1999; Welsh et al., 2019). Parents do not always succeed in perceiving their children's experiences accurately (Ross et al., 2015; Straub, 2018). This is due to the experiences and attitudes of the parents and how the children describe their experiences to suit the parents.

The factors mentioned above, parental support and involvement in sport, lead to assumptions that sport is a predictor not to be a snowflake and mirror the support and involvement of parents and their children's behaviour and attitudes to the study habits.

Methodology

This paper is based on a qualitative approach – Interpretative Phenomenological Analysis (IPA). The phenomenology is focused on exploring the perception, feelings and experiences of humans in everyday life (Cope, 2005; Sparkes and Smith, 2014). The main goal is to describe the essence of the experience and how the snowflake generation student makes sense of it and analyses the experience (Grbich, 2013; Patton, 2015) of their study habits regarding sport. The experience must be described, explicated and interpreted (Patton, 2015). The experience means perception, including hearing, believing, feelings, deciding etc. (Cope, 2005; Grbich, 2013; Patton, 2015; Sparkes and Smith, 2014). Two research questions were formulated:

RQ1: How do the experiences of the snowflake generation of students shape their study habits?

RQ2: What requirements does the snowflake generation of students have regarding university education?

The research sample was composed of students of the Faculty of Management, Prague University of Economics and Business. The research sample includes 16 students from all years of studies; there were seven females. The research sample was composed in regard to attitudes to sport at the levels of active, average and non-active performance sport.

Table 1 – Description of the Respondents’ Sample

| Respondent code | year of studies | sex | Sport history | sport currently |
|-----------------|-----------------|--------|-------------------|-------------------|
| TA1 | 1. | Female | average | performance sport |
| TU1 | 2. | Female | active | active |
| TM1 | 5. | Male | active | active |
| TM2 | 4. | Male | performance sport | active |
| TA2 | 3. | Male | non-active | non-active |
| TM3 | 2. | Female | active | average |
| TA3 | 4. | Male | performance sport | average |
| TU2 | 1. | Male | active | performance sport |
| FR1 | 4. | Male | non-active | non-active |
| FR2 | 4. | Female | performance sport | active |
| FR3 | 4. | Male | performance sport | performance sport |
| FR4 | 4. | Female | performance sport | active |
| FR5 | 4. | Female | active | active |
| FR6 | 4. | Male | non-active | average |
| FR7 | 3. | Female | average | average |
| FR8 | 3. | Male | non-active | non-active |

The data collection method was a focus group. The students were interviewed in four groups in the last week of the winter semester. The focus groups were led according to the prepared structure although the moderator let the students develop a discussion.

Data analysis – The interpretative phenomenological analysis helps to understand the participants’ experiences of the phenomenon. Regarding the phenomenological approach, the data analysis was provided without connection to the literature review (Cope, 2005; Grbich, 2013; Patton, 2015). The data were analysed using NVivo 12 Plus. The interview transcription was literal, and the analysis was in six stages: 1) searching for themes in the first case – repeatedly

reading each case, 2) identifying and descriptively labelling themes – cross-comparison of cases and connecting it to the theory 3) connecting themes and building its structure, 4) producing a table and reduction of themes, 5) continuing the analysis across cases and 6) writing a coherent account.

Main Findings and Results

The collected data about study habits are described and interpreted by the general principles of behaviour, the participants' (students) experiences and formed into requirements. The data collection was focused on identifying how students behave in their lives regarding education, sport, family and life on social networks. All these factors influence their study habits and predict whether or not to be a snowflake.

Principles of behaviour

First, the principles of behaviour at school discuss the attendance at lectures. Participants are willing to attend lectures, but not all the time. Some of them have other activities such as a part-time or full-time job. The majority of participants want to participate in lectures in person. However, the attendance depends on the importance and interestingness of the subject or (and) the teachers' style. There appear to be several approaches to taking notes during lectures. Only one student writes almost everything that teacher says while a few students write notes, comments or opinions that are interesting or are not on slides. The reason is that they cannot write notes and listen simultaneously and do not catch everything. The participants prefer only listening. If they do not understand the topic sufficiently, have a misunderstanding, or are interested in it as an additional source of information then they search for videos, mainly on YouTube.

The orientation in the topic and learning process even starts in the exam period. Almost all participants are studying for an exam or a test during the semester. Most of the participants have a study plan and divide their time between subjects. Some have a systematic plan in excel based on the SMART method. Others have a plan but cannot fulfil it or have minimalistic goals and are finally satisfied when they overcome it. Procrastination is a regular problem. There are two main types of students according to the time of studying as usual – night

owls and early birds. The night owls seem to be more effective because they have the necessary conditions and use their „flow“ to achieve goals. On the other hand, early birds often mentioned that everything disturbs them from studying. They also have problems with concentration regarding messages on cell phones. However, different conditions also appear according to their activity; for example, term papers can be written accompanied by loud music.

Students use various study materials. The basic building blocks are presentations; some students perceive them as sufficient material although it depends on the style of the presentation. As TM1 said: *„It's important to me what kind of presentation the teacher gives us, because they either have terrible presentations that you can't learn from, or they deliberately only give points there, which is useless and it comes to me from those teachers that it's not quite right to give just points because we want to listen and not frantically write that it is not just a transcript of spoken text, but it's about understanding it. So it's a bit of a pity for me. Moreover, when the presentation is good, I only learn from that presentation, otherwise, the materials just go around school, like the notes of those lectures.“* Hardworking students write notes and build their study material; the others just collect notes from colleagues and later compose or personalise those notes; most are shorter than the original. FR3: *„If the material will be thinnest and there will be everything and understandable. That is great. Of course, it's usually not like that, but if I'm able to do it in some way to do it thinner, then it's great for me.“* The shorter and simpler text is better for students. The main problem is that the context and interconnections of knowledge are missing. Then they are trying to find it on YouTube where there can be different concepts than the teacher wants, and the test result is the worst.

Participants were asked about their behaviour before and after the test. The test or exam is stressful, and snowflakes are very sensitive to stress. There are two main groups with different approaches. The first group describe their feelings as the same as before a race or match, i.e., a little bit nervous, but when the test starts, they stay focused and are motivated to do their best. The rest describe their feelings as similar as FR8: *„I feel like I don't know anything“* and when adding feelings after the test, for example, TA3: *„I estimate it according to feelings, so then I have some expectations, If it makes you feel like it's bad, it usually turns out great. And when I think it's good, unfortunately, it's usually bad“*. Some students are resigned and waiting for their mark; the others

want to discuss it with other colleagues. They need to know the results and then estimate the mark. The majority of students vent and want a reward in food. The snowflake (TA2) is still stressed: *„I try to pull it to the best marks. So I am so stressed out that when spoiling the test, it'll be mark two or three...“*.

Secondly, the principles of behaviour or attitude to sport are the second factor influencing a student's personality. Three levels of attitudes are identified – drug addiction, recreational sport and only if they have to. The first group is goal-oriented, hardworking, and do it on a performance level. Sport is their everyday activity on which are dependent, and most have tried several sports – *„What I tried, I was successful in that“* (FR3) and are *„multifunctional“* (FR4). The second group has a positive attitude to sport but do it more for fun as a leisure activity. Their sports activities are not regular, but 2-4 times per week. It is not about organised sport, but about self-initiative when visiting a gym or working out at home. The last group are non-participants in sport. They do sports activities occasionally, mainly during the summer season and perceive sport as a fun activity as said FR8: *„If I force myself, I quite enjoy it“*.

Communication is a big topic for the snowflake generation. The literature discusses the lack of their ability to communicate in person because of their digital life. The exciting finding is that all participants prefer personal communication because they can see emotions, and there is a lower probability of misunderstandings. Nevertheless, at the same time, they add that social networks are perceived as an essential tool for communication with their relatives. Social networks play this role, and participants use different social networks for different purposes. For example, TM2: *„I have it divided across those platforms, I have Facebook to know whom to wish for birthday, to watch the events at school and to know what is happening here at the faculty. I have Twitter more as a source of news and some of the latest information and comments more from journalists and from abroad and I have TikTok for fun, I use a unique algorithm where there are only funny videos“*. All participants use social networks as a place where they can relax. Male participants are mostly looking at funny videos, females searching for inspiration ... *„For relaxation and inspiration, I have those videos in loops or baking videos, I don't cook, but I look at how they do it, it calms me down.“* (FR2). Social networks are used as one way to follow selected content. Uploading their own content is perceived by the participants as a waste of time. While being aware of the dangers of social networks including spending much time on

them, they are addicted. TU2 says „*A lot of time-consuming activity that leads nowhere. I try to limit it, but I don't mean to say I'm addicted to social media, but once I join, I can lose that time running fast.*“. Social networks are often toxic places with many heterogenous discussions, full of rude non-constructive feedback. The participants in this research do not contribute to these discussions, and the majority do not read them because „*it annoys me when people don't know much about something, for example, but they are incredible experts, and they stand by that opinion, they try to convince others.*“ (TA2).

The participants perceive feedback as an essential part of the communication process. They need constructive feedback for their development and ability to change deficiencies. Unconstructive feedback is either ignored or just summed up with the words “*Ok, what should I do with it?*“ (FR6). At the same time, the person who provides feedback should be an expert in the area. On the other hand, providing feedback is problematic for them. Participants are divided into two groups – those who give thoughtful feedback according to the recipient and those who cannot provide feedback so do not do it. Providing feedback is closely connected to empathising with others and adapting the feedback. In general, the rule is that the closer the person is, the more direct the feedback.

The behaviour mentioned above is shaped by general personality values, background and motives. Values are created throughout a lifetime, and a large proportion of them have life experiences that a person has experienced since childhood. The social environment shapes these values, most often through family, friends, sports, and nowadays, even social networks to a significant degree. The participants are aware that their values change over time. Several of them were negatively affected by the breakdown of the family during their childhood, which has affected their values and attitudes towards other people, especially their siblings and has created a commitment for their future family. The most frequently mentioned values are veracity, family time, mutual respect and helpfulness; the values that participants hate are selfishness and non-cooperation. Values gained through sport are mostly goal-orientation with the motto „No pain – No gain“, teamwork, psychological resilience and concentration, the ability to receive feedback and learn from it. The influence of family and a sports background (history) also motivates them to study and play sports. As the snowflakes require appreciation and rewards, the research participants are mainly motivated by self-development in education and sport. Only those whose attitude to sport is lower need to be rewarded.

Experiences that shape behaviour

Experiences are predictors of future behaviour. Stepping out of the comfort zone starts the process of learning through experiences, whether they are positive or negative. The stronger the experience, the more efficient learning is, and finally, the boundaries of the comfort zone are shifted. Philosophically, the ancient Greek word *Kalokagathia* is connected with personality education, where sport is perceived as an essential tool to achieve the state of *Kalokagathia*.

The participants experience sport very positively in several ways. First, sport helps them to be better prepared for real life, set the right life values and systematise effort. The comment by TA3 is apposite: *„I think sport is important, it's a school for that person. So as a school here, they just learn things like that for life itself.“* However, the participants also perceive challenging tasks in balancing time between school and other activities with sport. They usually feel angry when they cannot do sports activities... *„It annoys me terribly that I have less and less time for that. Even though I try to do as much as possible and even if my husband doesn't like it at all, I do workouts at 10 in the evening because I just want to. For me, it's rest, relaxation, and it's something I like that I'm looking forward to.“* (TU1). TM3 has a similar feeling *„(...) serious health problems came and I had to end it. I was depressed because it was entertainment and a place to see other people, I wanted to be part of a team and put in the maximum. Getting rid of it was very difficult and so I'm glad that at least here in college I could somehow return to it.“* Sport is a place where they can turn off and relax and build community and friendship. *„Sport definitely brought me that friendship, even though I do individual sports, the community is great there. It also taught me that there is always someone better in that life, I have learned not to deal with it. I will do really everything for it and there will always be someone better here and it is better not to compare myself with them. Compared to how I've shifted, I'm already doing it in everything. I'm not looking at anyone over there, but that I've improved is a great success.“* (TA1). The goal-oriented participants use sport mainly to improve their fitness and feel happy if ... *“the hard work wasn't wasted, those frozen feet, abrasions and riding in the basement, it wasn't wasted.“* (TM2)

Education has undergone several changes in recent years due to the Covid-19 pandemic. Both teachers and students gained new experiences. The education system was forced to change significantly, but participants still perceived it as lagging. Online teaching has been a step

forward, but most students do not like it. The principal remained the same: the teacher explained, the students listened. The only advantage they see is that it was possible to replay the lectures. This experience did not push them too much; instead, they were lazy in their approach to studying – *„I really don't like online teaching, overall, it would definitely be nice to always have the videos made, but again the question is whether some of us would go to school...“* (TA1). They also saw the reluctance to cooperate with the teacher among their colleagues, and although they often felt sorry for the teacher, they still did not get involved. They often had a problem with attention in online teaching. Some participants appreciate the effort of some teachers on a stereotype breakdown in the form of alternative teaching and evaluation. Nevertheless, they also perceive obstacles for implementation into the whole education system. A step outside the system is always perceived positively, and this experience moves students forward. Teachers also need constructive feedback to improve their teaching style. As mentioned by TU1 *„Feedback from students is also a great thing. We can move them forward, and it's better for us too, because you're giving us the information and we need it in the best shape possible and we have to absorb it“*. Almost all the participants had negative experiences with a teacher who wasn't willing to provide feedback after a test and felt they couldn't move forward.

The research participants also have negative experiences from teamwork. Many of them experienced reluctance to cooperate, excuses or unfinished work. This experience is gained when team members are assigned to them. They prefer to choose team members whom they know and how the cooperation works well with them. There are often athletes in one team. People who do team sports tend to be good team players; simultaneously, they can divide their roles well and pursue a common goal. *„A good team achieves good results. So when there is some collective work, for example, for a semester work, you have to have a good team so that everyone can get along. Everyone did the same, and the best result was worth it.“* (TM3). Then there are many „free-riders“ whom no one wants, and those eventually create a team that does not have good results. *„We usually choose people whom we know, how they work and how it works with us. We know that they can bring us something, but if forced into a group by the teacher, we don't know anymore. And most of the time, the free riders seem to be left behind. And then it's like natural selection.“* (FR2). This experience seems to be very important at the beginning of studying.

Family is one of the primary sources of experience. Parents have different approaches and, at the same time, play different roles in raising children. Some participants have enjoyed their family's full support and understanding for their studies and sports career; the others lack attention and approval. Finally, both these experiences had a positive effect on personality development. Four participants are from divorced families. Nevertheless, all of them feel support and interest in their studies; parents are motivating and sometimes motivated their children with money although not anymore. Almost half of the parents prefer an open approach and leave decision-making about studies to their children. Those who were only appreciated minimally do not require appreciation anymore and are happier with their success - „*My parents did not praise me, they took me for granted, but it was not a matter of course. I have always been good at it, but it does not matter, I did not mind, and I think it is good in the end that I was not so much praised. I do not expect that much from anyone anymore, no praise. I'm just happy to do something for myself. I achieved that.*“ (TU2). Those who lack appreciation become more goal and performance-oriented and finally hardworking. The opposite is the daddy's girls enjoying maximum support, praise and help. The family background and its influence on the overall personality is a vast topic; from the data, a lot of interesting connections can be interpreted, but there is not enough space to discuss them.

Social networking experiences tend to be connected to the snowflake generation characteristics, and their influence on attitudes or study behaviour is minimal. The main problems on social networks are perceived by the participants to be a polarised society and mainly problems regarding covid, racism, ecology and performative activism. Social networks play a different role between generations, and the participants perceive the behaviour of the older generation as awkward and thoughtless regarding the impact of shared content. Similarly, they perceive the dangers to their younger siblings who are addicted to sharing their lives with the networks.

Requirements

The data showed that participants have a clear conception of how the university education can be changed to better correspond to their study habits. First, lectures should be less formal, based on interpreting knowledge and theory on stories and practical examples. They would appreciate regular attendance experts from praxis and the possibility of discussing with them to connect to the real world. The lectures should

be re-recorded (normally 1.5x accelerated) for future watching. The study material should be presentations or a short text accessible in advance. They prefer only listening or taking notes occasionally in the case of something interesting. The lecture should be spoken in a non-expert language to be easily understandable. The additional study material should be in electronic form for better-searching topics. At the same time, it should not be a long text; students prefer concentrated knowledge in a smaller space, which should take as little time as possible.

Participants also prefer short videos for giving context because they understand that short summarising text helps orient the topic but does not include context and interconnections to other topics. The maximum length of the video should be 15 minutes and catch their attention within the first 5 seconds. The video can be prepared by students or a YouTube video agreed by the teacher.

Participants would appreciate changing the stereotype of teaching to engage in more discussion and teamwork. Teamwork and discussion will be applied fully in seminars and work on a term paper but will choose the team members themselves for value. The role of the teacher would be a leader who gives them constructive feedback and expert advice. Without the expertise, they will not accept any feedback that will help them move forward. Rewards are expected after achieving long-term goals.

Discussion and implications for teaching snowflakes

The results showed that most of the participants have a positive attitude to sport and that their sports history and experiences shaped their personality and principles of behaviour. The problems and characteristics of the snowflake generation are caused primarily by their parents and digital life (social networks). These characteristics are also noticeable in the research sample. The reason is that the parenting style is based on openness, extreme care and protection of children from any stress. On the other hand, sport positively impacts snowflakes. The data showed that the more sports activities per week a student does, the more purposeful and systematic they become. Similarly, those who run or partake in sports with running are more accustomed to working hard and are focused on the results and their measurability. Competitive sports also

help reduce exam stress. They always feel a certain amount of nervousness before a race or match, but once it starts, the nervousness spills over into adrenaline and focuses on performance. At the same time, athletes who do collective sports are perceived as better team players for teamwork.

Athletes are also more accustomed to receiving, accepting and learning from feedback. There is a consensus among all in receiving feedback; they require constructive feedback formulated by a person they consider an expert. Students who do not have a long sports history are not very accustomed to receiving feedback and often take it personally as a failure. This is where we see the characteristics of the snowflake. Everyone requires feedback, but this is more so for those who are more goal-oriented. The problem occurs when they have to give feedback, independent of whether a person plays sports or not. Half of them provide feedback and always try to formulate it more to the others as much as possible while the rest prefers not to give it. Everyone perceives that teachers also need feedback although they have adapted their teaching style to their requirements. However, the question arises as to whether students give constructive feedback as part of the course evaluation.

The family has a significant influence on the principles of behaviour and experience. The parenting style and experiences shape the personalities of individual students. Those who have experienced various unpleasant situations, whether parental divorce or differences in the approach to siblings and a lack of support or praise, tend not to meet the given characteristics of the snowflake in this respect. At the same time, those from divorced families are learning more about how they want to work with their children and trying to protect their younger siblings. The family background significantly influences the motivation from the point of view of internal or external factors, but it is not possible to identify a clear direction here. In any case, students who did not have the support of their parents in sports clearly state that their children will play sports. The benefits of sport, such as the ability to concentrate, responsibility (Stefansen et al., 2018), fairness, regularity (Harwood et al., 2019), stress reduction (Dogan, 2020; Lower et al., 2013) and new environment adaptability (Yanik, 2018) helps to decrease the characteristics of snowflakes. Family and sport shape the values and principles of the behaviour that students carry with them. However, their requirements are strongly influenced by their lives on social networks. They require a rapid flow of information in a concentrated, non-violent, entertaining and comprehensible form.

The practical implications for education are to be focused more on learning goals than performance goals (Seijts et al., 2004; VandeWalle et al., 1999). The relationship between goal orientation and performance outcomes was identified, and the learning goals are better than performance goals (VandeWalle et al., 1999; Welsh et al., 2019). The performance goals can support their need to be perfect, and marks at school are just numbers that do not mean that one has learned and moved forward. As TU2 said: „*Learn, write a test and forget ...*“ Achieving the learning goal by pushing them out of their comfort zone and gaining experience is the proper way to educate the snowflake generation.

Concerning psychology, most of the work will be for the teachers if all their requirements are met. Students do not enter the learning zone. Their stress zone is too close to the comfort zone and as a result, the learning zone may disappear entirely. Therefore, it is necessary to give them the elements of comfort in the form of materials and teaching style that they require, but at the same time force them to leave their comfort zone. It is necessary to select suitable tools for this output. Let us give them everything they want but also let us expose them to the stress zone by being pushed to prepare more for each hour, to have studied all the necessary (required) materials to be discussed. At the same time, they will be constantly given constructive feedback, but they will be forced to give it to each other. Let us use their characteristics – the need to be perfect and let us create rituals for their preparation for teaching although we must warn them. Let us set the rules of the game right at the beginning of the semester, a precise evaluation system, the exact schedule of the semester. Let us support teamwork team evaluation during the semester; let us teach them different roles in the team. The Czech university system also has some limitations on implicating these suggestions. There are subjects with hundreds of students where this discussion is not possible. Similarly, preparing all study materials, including videos and podcasts, is time-consuming.

This study has two main limitations - both are connected to the methodology. First, the recommended data collection method for Interpretative Phenomenological Analysis is a semi-structured interview with fewer respondents, but focus groups are also acceptable. The disadvantage of a focus group is in the data analysis and comparison of cases. The researcher should be accurate about the interpretation of each participant's feelings. The advantage is that the discussion can have a new and exciting direction, which would help the topic become more profound and to understand the context correctly. Second, the research sample was

composed of students who were willing to participate. These students are active and skilful. They usually participate in university events and social life as volunteers. Due to this condition, the results of this study can be shaped. Future research should include all types of students who can have higher predictions to be true snowflakes. Future research will also be focused on students from high schools and primary schools. The reason is apparent, to be prepared for the avalanche of true snowflakes...

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Approaching the Snowflake Generation Online: Subjectively Perceived Consequences of Studying During the Pandemic

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Abstract

The paper aims to bring a deeper insight into the perception of the home studying of students who belong to the so-called Snowflake generation. Qualitative analysis of in-depth data from semi-structured interviews with fifteen respondents (n=15) was conducted to understand the subjectively perceived consequences of studying during the pandemic. The results showed that anxiety was the common denominator of teaching during the pandemic. At the same time, those students who found online learning comfortable reported a substantial reduction in anxiety. The opposite was true for students who rated online instruction negatively. The research probe also indicated no significant shifts in attitudes toward online studying during the lockdown and toward possible further online education in the case of another lockdown. In addition to anxiety, three main thematic categories characterise online learning in the pandemic: attitudes, place, and people.

Keywords

Snowflake generation; Online studying; Pandemic; COVID-19; Learning loss; Anxiety.

Introduction

The lockdowns put in place to control the spread of COVID-19 in a matter of months in 2020 and 2021, represented a sudden, dramatic and unexpected disruption to all components of social and economic life. The combination of school closures and broader lockdown and

quarantine measures, such as movement restrictions and administrative closures of many businesses or public institutions, affected the lives of children and their families. The educational experience of students was completely transformed for several months.

Educational institutions at all levels had to improvise quickly to ensure some continuity of education for students. It was necessary to adapt teaching methods to a situation where, in one day, the learning environment shifted from school to home for most students. There has also been a fundamental change in the way pupils and students are taught from direct contact with their teachers to some form of distance or distance learning, often under semi/parental supervision.

Technically speaking, the measures that provided distance learning, while not replacing regular face-to-face teaching, ensured that most pupils and students continued to have contact with teachers and the school. Moreover, teachers, students and parents have mostly adapted to the new arrangements. Most teachers continued to teach, and most pupils continued to learn. Most parents were able to help their children with their education when needed. In this sense, the educational process was not restricted, and there were no significant changes in formal terms.

However, online learning has placed new demands on students and their loved ones. Students' home and social environments were also significantly affected, which affected their online learning experience. Personal contact with persons other than household members was severely limited. Many parents' working patterns changed, often dramatically. Many were temporarily laid off or had to work from home. In addition, parents faced much stress associated with the pandemic: worries about sick friends, relatives, and family. This and many other factors then created the environment where online learning took place. Suddenly, only a technical problem, the transition to online learning, brought with it other often significant issues.

The situation can be described as psychologically challenging for each individual. The question is how young people in the Czech Republic managed the transition to online study and its process. It is the generation of people born between 1995 and 2005, who some authors describe as Generation Snowflake (Murray, 2018). It is a generation that has experienced virtually no global external situation that has impacted their lives. The COVID-19 pandemic and the related measures can be considered as a highly influential external factor. Thus, this paper aims to determine how these young students perceived online learning.

Methods

Due to the specific nature of the topic, the grounded theory approach (Strauss and Corbin, 1994) has been chosen to conduct this study. This is a qualitative method that allows a closer examination of a particular phenomenon and discovers new theories based on collecting and analyzing data from the real world (Martin and Turner, 1986). The grounded theory approach can be described as an iterative process of data collection, data analysis, and theory development (Chun Tie et al., 2019). Therefore, data collection was the first stage of the research.

The data for this study was mainly collected from the primary source; secondary sources were used to create the analysis's theoretical foundations. The relevant scientific papers and government reports were employed as secondary sources. Secondary data collection was done by conducting a literature review method. The data obtained was also used as a reference point during the coding of the subsequent interviews.

The participants for this study were selected using the main two related criteria: (a) belonging to a group of the snowflake generation and (b) availability for personal interviews. A call for interview participation was sent through the school information system at the Faculty of Management, Prague University of Economics and Business, located in Jindřichuv Hradec. Thus, it was possible to address all students belonging to the target group. Students then expressed their willingness to participate in interviews with pre-set time slots via an online registration form. A total of 48 students applied, and these were ranked from 1 to 48 in the list of potential respondents according to the time of their registration. Subsequently, using the generated random numbers in MS Excel [=RANDBETWEEN (1; 48)], 15 respondents (of which 11 were women and 4 men) aged 19 to 26 years old were selected. The overall number of participants met the saturation criterion by Francis et al. (2010).

The chosen respondents were contacted by private message and provided with details about the study. All of them (n=15) then agreed with the conditions and appeared at the interview. One researcher, an assistant professor with a master's degree in social communication and a bachelor's degree in pedagogy, conducted the interviews. The researcher also had extensive experience conducting semi-structured interviews, and he knew how to set aside any bias to allow the participant's experiences to emerge. The discussions then took the form of semi-structured interviews, allowing to follow a suggested script of questions and simultaneously inquire in more detail about emerging themes (Blee and Taylor, 2002), lasting approximately 60 to 90 minutes.

The respondents were asked about their experiences from one semester of online learning. The main areas of interest were asked using the following questions: (a) How did you enjoy studying during the pandemic?; (b) What were the main subjectively perceived positives and negatives of online studying?; (c) Where did you study online, and what issues were related to this place?; (d) When studying online, have you been negatively affected by your parents, siblings or pets?; (e) What was your experience with examinations and knowledge testing during the online studying?; (f) What were the sources of motivation to participate in the lessons during your online studies?; (g) How did you perceive the role of your teachers in the online studying?; (h) How did you experience separation from classmates, friends, and other close people?, and (i) How would you deal with the situation of another lockdown where you would have to complete the semester of study only online?

Audio recordings were transcribed verbatim using the Transcribe function in MS Word software and then independently manually inspected by two master's students for absolute accuracy (MacLean et al., 2004). The interview transcripts were subsequently coded within the three steps as follows from the grounded theory: (1) Initial coding, (2) Intermediate coding, and (3) Advanced coding (Chun Tie et al., 2019). Following the principles of an open coding process enabling the identification of repetitive codes (Walker and Myrick, 2006), the interview transcripts were independently reviewed and coded by two researchers. Analytic notes and a coding guide were subsequently created.

Within the second coding cycle (intermediate coding), the previous results of the two researchers were merged, and a final version of the coding guide was created. The coding guide was embedded in a web-based version of Atlas.ti software, in which the codes were subsequently processed. At this stage, codes from the open coding iteration were grouped into the following three subcategories following the grounded theory coding paradigm (Vollstedt and Rezat, 2019): (1) Phenomenon, (2) Causal Conditions, and (3) Strategies. The third coding cycle (advanced coding) then enabled one main category to connect the codes gained from the previous stages. This allowed to put the new finding into the context of the current state of knowledge, modify an existing theory, and therefore answer a research question.

Results

The respondents were asked questions to reflect the impact of online study during the pandemic (see the questions in the methodological section). These issues also formed individual thematic areas. The answers within

the individual sections are processed below. At the same time, the topics that appeared after the analysis of previous responses are processed. The results are then to be processed to reflect the main recommendations for possible further teaching of the generation of snowflakes online. However, some general suggestions can also be applied to standard school teaching.

Emerged themes

The analysis of the interview data resulted in the emergence of a central theme of anxiety as the omnipresent element within all the examined categories. Interestingly, while online studying during the pandemic, the anxiety increased or decreased depending on the respondent's relationship to home study. Simply put, those respondents who perceived online learning positively also reported a reduction in subjectively perceived anxiety associated with studying. On the contrary, students who perceived online studying negatively reported an increased level of subjectively perceived anxiety.

Anxiety, defined by subjectively perceived extreme values (and their changes), permeated all topics and all thematic categories that emerged from the analysis of the interview data. These main thematic categories were: (1) attitudes, (2) space, and (3) people. The main thematic categories also contained the sub-themes that formed their framework.

Attitudes

The respondents' attitudes were identified mainly in the (a) overall relationship to online studying and in (b) relation to the possible repetition of the lockdown leading to further online study. Also, (c) attitudes to the sources of motivation for the online study were identified. Finally, the interview data provided an opportunity to identify (d) general subjectively perceived positives and negatives in relation to the lockdown itself during the pandemic.

In terms of *attitudes towards online study during the lockdowns*, overall respondents' perceptions and emotions did not fundamentally change over time. If the respondents had a negative attitude towards online studying, their beliefs remained and vice versa. If there were any changes, they were mild (one level of scale) and relatively supportive of the previous attitude. Answers to the question „Did you enjoy online learning?“ were converted to a scale from 1 to 5, where 1 represented the strongly oppose attitude and 5 the strongly favour attitude. The median of all responses was 4, which means a somewhat favourable attitude. The same median came out for the question of whether the respondents would enjoy a possible further lockdown and related online study (see Table 1).

Table 1 – Description of the Respondents’ Sample and their declared attitudes.

| Resp. no. | Gender | Age | Attitudes towards online study: | | Online studying and its related subjectively perceived: | |
|-----------|--------|-----|---------------------------------|---------------|---|---|
| | | | in the lockdowns | in the future | positives | negatives |
| 1 | Male | 22 | 3 | 4 | comfort | missing or low interactivity, lack of a collective/collaboration |
| 2 | Female | 23 | 1 | 1 | multitasking | missing or low interactivity, lack of a collective/collaboration, uninteresting study process |
| 3 | Female | 23 | 1 | 2 | N/A | concentration difficulty |
| 4 | Female | 23 | 3 | 2 | comfort | lack of a collective/collaboration, concentration difficulty |
| 5 | Female | 22 | 5 | 5 | multitasking | missing or low interactivity, lack of a collective/collaboration |
| 6 | Female | 23 | 4 | 3 | comfort, multitasking | uninteresting study process, missing or low interactivity |
| 7 | Female | 22 | 1 | 4 | flexibility | lack of a collective/collaboration, concentration difficulty |
| 8 | Female | 26 | 4 | 2 | comfort, flexibility | N/A |
| 9 | Female | 24 | 5 | 4 | improved concentration, comfort, decreased anxiety | lack of a collective/collaboration |
| 10 | Male | 19 | 5 | 4 | improved concentration, flexibility | lack of a collective/collaboration |
| 11 | Male | 19 | 2 | 1 | comfort | lack of a collective/collaboration, missing or low interactivity, uninteresting study process |
| 12 | Female | 19 | 5 | 4 | improved concentration | missing or low interactivity |
| 13 | Male | 20 | 5 | 4 | flexibility, improved concentration, comfort | missing or low interactivity, lack of a collective/collaboration |
| 14 | Female | 19 | 1 | 1 | multitasking | missing or low interactivity, lack of a collective/collaboration, uninteresting study process |
| 15 | Female | 25 | 4 | 4 | comfort, flexibility, multitasking | concentration difficulty |

The scale for measuring attitudes to online study was determined according to Vagias (2006) and had the following items: 1 – Strongly oppose; 2 – Somewhat oppose; 3 – neutral; 4 – Somewhat favour; 5 – Strongly favour.

Subjectively perceived positives and negatives related to the online study of each of the respondents were grouped in the data processing process into the topics listed in Table 1. The individual meanings for some of the attitudes, were as follows:

Comfort – Respondents appreciated the pleasantness and safety of the home environment or the fact that they did not have to comb their hair and dress as they usually have to go to school. An increased level of comfort for them was also represented by a reduced level of anxiety associated with staying at school, going to school, or interacting with classmates. Some respondents appreciated that they could attend lectures and exercises in their pyjamas and without morning hygiene.

Multitasking – The answers of those respondents who claimed that they could carry out further activities during online teaching fell into the category of multitasking. Whether running or walking outdoors, walking pets, playing a musical instrument or glueing plastic model aeroplanes. Interestingly, respondents simultaneously claimed that these other activities did not reduce their concentration on teaching but, on the contrary, helped them focus better on interpretation.

The other two topics – *Flexibility* and *Improved concentration* – were therefore almost directly connected to the topic of multitasking. Above that, most respondents highly appreciated the possibility of listening/watching a lecture from a recording. This is captured well in two respondents' quotes:

It was great that we had the recorded lectures available on YouTube. I played them as part of the lessons and before the test. I played the video at twice the speed, which was a very effective way of learning. (R2)

I remember the things I hear much better than I read. I saved the lectures in the form of a podcast and listened to them, for example, while running, walking the dog, or just before going to bed. (R7)

However, the students also pointed out that not every teacher could give lectures in this form.

The table does not show one positive attitude towards online study, as it was indirectly present in (and also induced by) almost all the topics mentioned earlier. It was a *reduction in the subjectively perceived level of anxiety*. This was described, for example, by one respondent (R6), who claimed that „*strumming the guitar while listening to a lecture gives him more peace and better concentration.*“ Another respondent (R9) claimed that she sat in a chair at home while teaching and did not have stress from other classmates. The stress associated with commuting to school for teaching or testing was also reduced.

On the opposite attitudes side, only four main themes emerged as follows: missing or low interactivity, lack of a collective/collaboration, tedious study process, concentration difficulty. However, those were recognised by almost all respondents, regardless of their overall attitude to online study. Negative attitudes were also the main factors that students cited as the main reason they did not want to repeat the online studying in the event of a new lockdown.

While the online format of the lectures, watching/listening to them at any preferred time or any desired place were considered as an essential benefit, that does not apply to seminars or exercises. Respondents mentioned *little or no interactivity* in connection with the exercises or seminars. On the one hand, they could not cooperate sufficiently with their classmates, and at the same time, in their opinion, the teachers could not cope with conducting online seminars. Quotes from some respondents clearly illustrate the issue:

One teacher wanted us to work with classmates in the field during the lockdown. We were to go to another district and carry out field research there. But this was not possible because travel between districts was very limited at the time. In my opinion, dangerous; I was afraid I would get infected outside because I had not been vaccinated yet. (R15)

It was difficult for me when the teacher told us to form teams. But I didn't know my classmates; we never saw each other. He wondered why it took us so long. I think he should have created teams or groups himself. It was very stressful. (R9)

The respondents pointed out that it is challenging to work on group tasks without *direct contact with the classroom*. At the same time, the missing team was mentioned without a direct link to the teaching process. One respondent's quote summarises the views of several other respondents:

I like that before classes (even during the classes), I can talk to friends about studied issues and those not associated with studied topics. For example, when a teacher is talking about something, and I don't understand it, I'm used to asking my neighbours at the desk. I could ask the teacher via chat in the online environment, but I was embarrassed. (R3)

The last two negative factors - *tedious study process* and *concentration difficulty* - are related to the previous factors. Due to the low interactivity of the study and the impossibility of working in a team, students were often bored with the lessons. The monotonous home environment created a dull impression, which supported the weariness of online studying. At the same time, it was difficult for some respondents to maintain attention to the teaching. Several respondents reported similar experiences to the following two:

I'm used to each subject being taught in a different classroom at school. So, I have to move around the school; I change the environment. At home, I was still sitting at the computer in my room. It was terrible boredom. During the lockdown, I completely rebuilt the whole room four times. (R14)

Usually, I'm mentally prepared to be attentive when sitting at school. At home, my thoughts flowed freely. I remember how often I realized that my room was not tidy enough, and I started to organize my desk or vacuum the floor. Or I walked the dog or took out the waste bin. All this distracted me from studying. (R4)

The analysis showed that the last two named topics led to the emergence of another theme – *motivation*. In various forms, it intertwined within all thematic groups, but mainly motivation was interconnected with the topic of attitudes. Again, it was much easier for those respondents who enjoyed studying online to stay motivated to learn. In this case, as a source of motivation, respondents often mentioned factors like the possibility of studying anywhere, repeated listening to the recorded lectures, own learning speed or greater inner peace, and a sense of security associated with the lockdown.

On the other hand, finding sources of motivation was challenging among respondents who did not use online learning. One respondent admitted that he had no motivation to study, and he completed the semester primarily by luck. Other respondents mentioned internal motivation because they wanted to either graduate or advance to the next year of university. Other respondents mentioned authority as a teacher, or another supervisory authority, as a characteristic external stimulus that forced them to study.

Space

As the teaching could not be carried out on the school premises during the pandemic, the online study took place at home or at the places where students permanently stayed. Naturally, this had both positive and negative consequences. Within the researched sample of students, it is possible to identify three places where students studied online: a shared home with their parents (7 respondents), their rented housing (7 respondents), and student dormitories (1 respondent).

What it was like to study in student dormitories during the pandemic is best described by a quote from one respondent:

The student dormitories were completely empty during the lockdown, and I enjoyed it. I had a shared double room all to myself. The dormitories in the shared areas were clean. There was silence in the evening and at night, and I could sleep well and concentrate better on studying. (R7)

For students who studied in rented apartments during the pandemic, the situation was very similar to the dormitory. But there was one difference – these people mostly lived with their partners, some of whom had to study online too. Then they may have negatively interfered with each other. However, the problem of distractions and lack of quiet for studying was reported primarily by those students who took online classes in households shared with parents and eventually siblings. Quotes from two of them clearly illustrate the plight of these students:

It made me anxious that my parents didn't understand that I was still in class even though I was locked in my room. I put a „Do Not Disturb“ sign on my door, but they were talking at my door regardless. It was disconcerting. I felt embarrassed when I had to speak in front of the class, and the voices of my parents talking about unrelated things could be heard. (R14)

I have a sister with downs syndrome. She would sometimes enter my room without permission when I had class. She demanded my attention, which I couldn't give her. My sister couldn't understand why I didn't want to talk to her and was angry with me for a long time afterwards. It made me very anxious. (R10)

It made me nervous that my parents did not understand that even though I was at home, I was basically „at school.“ They often talked to me or gave me some homework. My most embarrassing moment was during an online oral exam when my mom came to tell me it was lunchtime and to turn off the computer and eat immediately. (R6)

Moreover, the disturbing elements of the home environment had been strengthened by inadequate technical equipment and infrastructure. In larger families, inadequate internet coverage substantially reduced the quality of online studying. The respondents reported significant problems with the continuity of online transmission. Demands on the line from other family members made it impossible to take full advantage of online learning opportunities (e.g., webcam on, desktop streaming, etc.). Some respondents also reported simply not having adequate hardware equipment in their households.

People

The emergent theme of people took many forms in the respondents' answers. Most of these were already mentioned above, in relation to attitudes towards online learning and also about the location where the education took place. In general, the responses reflected the issue of classmates and school-related staff relationships. However, there was another vital sub-theme related to people, and that was the lecturer's personality.

One phrase appeared in the respondents' answers each time they were asked about the role of their teacher – „It depends...“ It turned out that there was no such thing as a universal impression of the teachers by the respondents, as according to their answers, there were abysmal differences between teachers. The students with a positive attitude towards online learning and those with a negative attitude, both recognised the differences. In general, the respondents claimed that those teachers who were able to teach well during the regular school lessons also performed well online. And vice versa, to be added.

Almost all respondents indicated that they felt there was a significant difference among younger and older teachers in their approach to online teaching. More senior teachers, students felt, could not use ICT adequately. A quote from one respondent illustrates this:

One older lecturer hadn't turned her camera on for the entire semester, so I had no idea what she looked like. In addition, it often happened that during the class, she suddenly disappeared from the online room and never came back. It made the class too confusing. (R3)

The respondents also reported that some teachers did not understand how students were restricted during the lockdown. They did not perceive the complexity of teamwork, which was not easy to organize in an online environment, especially when students did not know each other. The lack of understanding was also evident in the evaluation, where students felt that they were a priori considered cheats when writing tests. Therefore, the teachers reduced the time to complete the test, regardless of the real possibility to write the test within the given time limit.

The students were also bothered by inconsistency in the teachers' approach, which is clearly illustrated by the following quote from one respondent:

It bothered me that some teachers gave assignments or communicated with us outside the lesson via email, others via MS Teams, and some via the school system. For me, it was a colossal confusion; It was difficult to keep track of everything, which stressed me out. (R8)

Discussion and conclusion

Retrospectively assessing the online learning situation during a pandemic is difficult for both the student and the researcher. The pandemic, and the associated lockdown, were such emotionally challenging cir-

cumstances that their impact was reflected in almost all people's activities. Thus, many of the personal insights from this recent period carry an emotional charge that is more associated with the pandemic than with a particular situation – in this case, online education. A quote from one respondent illustrates this emotion:

I was so angry about the whole situation. I was mad at the government for leaving us in it; nobody cared about the students. I felt insanely helpless and mad at the same time. All those emotions come flooding back when I now think back to the COVID-19 related lockdowns. (R15)

However, using the chosen methodology and carefully processing the results, it was ultimately possible to obtain relevant student insights from the online studying during the lockdown period. As mentioned above, three main themes emerged from the probe having one common element. These are the issues of a) attitudes, b) space, and c) people. Anxiety was found as an omnipresent element within all categories. Certain situations reduced anxiety, and others increased it. In doing so, the students' perceived attitudes towards lockdown and related online learning mattered greatly.

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Mandatory and voluntary assignments: Experience from an Economics class

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Per Tovmo

Abstract

This chapter analyses the impact of voluntary assignments in an introduction level course in Economics at the bachelor level, implemented to provide students with an additional option for feedback on their work. Based on survey data on students in the course, we find that only a few students submitted voluntary assignments for feedback. Furthermore, it seems to be the most motivated students only, i.e. the ones who attend to lectures and exercises regularly, who opt for the voluntary assignments. In a situation where economic constraints force universities to prioritize between learning activities, there is reason to question the added value of offering the option for feedback through voluntary assignments. One policy implication from this study might be that compulsory activities seems to be more important to stimulate students to work steadily through the term.

Keywords

Generation Z, voluntary and mandatory assignments, feedback, education quality.

Introduction

When students move from higher secondary school to university, they often have to adjust to a new learning and teaching style and a shift from mandatory activities towards voluntary or student-controlled activities. Suddenly, attending lectures is voluntary, homework is rare or absent, and mandatory assignments are few. In Norway, the number of students enrolled in universities has increased steadily over time

and is still increasing. However, a study of students enrolled at universities during 2008-2012 shows that less than half of the students complete a bachelor's degree within the estimated time (Statistics Norway 2019). The Norwegian government has expressed an objective to increase the level of completion, reduce dropouts and has introduced measures to provide universities with incentives towards increased completion, such as indicators on completion and related payments (see e.g., Hovdhaugen et al. 2016).

There are probably several reasons why such a large percentage of students today fail to complete a degree on the estimated time, although one major plausible reason is that the number of students has increased substantially over time and hence, so has the heterogeneity across students. When disregarding the type of learning activities and teaching style, completion depends on individual preferences and characteristics such as self-motivation and abilities (see e.g., Falch et al. 2010 for a study on dropouts in Norwegian higher secondary schools). In the past, when a smaller percentage of students from higher secondary schools applied for university studies, the students were probably more homogenous and had individual characteristics biased towards those suitable to master a university learning environment that largely relies on voluntary learning activities compared to what students had experienced in elementary and higher secondary schools.

However, over time, along with increased student numbers, there has been a shift towards more mandatory learning activities, even in large classes such as lower-grade subjects in social sciences and humanities. Furthermore, the demand for more student-oriented learning activities has increased, such as group work in class, assignments, and feedback. Still, the share of Norwegian students completing a bachelor's degree within the expected three years is barely 50% (Statistics Norway 2019). A better understanding of the type of activities that are best suited for improving students' learning and completion could enable further improvements.

The generation of students entering higher education today belongs to the cohort of children denoted as Generation Z, which is defined as those born between the second half of the 1990s and 2010 (Chicca and Shellenbarger 2018, Dimock 2019, Iftode 2019) and is claimed to differ from preceding generations. This generation is also referred to by many other names, as described by Berg et al. (2022), where the bulk of these names is linked to the digital world in some way, for example, the net generation,

the mobile generation, digital natives, the Facebook generation and Gen Tech. Several papers explain the characteristics of Generation Z and commonly characterize it as the first generation of digital natives. Generation Z has grown up with smartphones and online connections at home and in school and with anything they want to know just one click away. Seemiller and Grace (2017) discuss how the digital life of Generation Z affects their learning preferences and learning styles. Based on two different surveys, Seemiller and Grace (2017) and Shatto and Erwin (2016) found that Generation Z learns by observation and experimental practice rather than reading textbooks and listening to PowerPoint presentations. Moreover, Generation Z has an affinity for seeking information through video and prefer hands-on learning opportunities where they can apply what they learn immediately to real life (Seemiller and Grace, 2017). In addition to a preference for technology-based applied learning, Generation Z prefers intrapersonal learning. The individual nature of technology has made Generation Z comfortable and accustomed to learning independently (Semiller and Grace, 2017) and “individualistic” is one of the characteristics of Generation Z according to Chicca and Shellenbarger (2018).

The individualistic learning style of Generation Z probably implies an even more heterogeneous mass of students and may therefore require universities to implement more various learning methods and activities. The purpose of this article is to investigate how students respond to a mix of voluntary and mandatory learning activities, which adds flexibility and offers students an opportunity to choose based on individual preferences. We use data from a survey of first-year students in Economics at the Norwegian University of Science and Technology (NTNU). In the survey, the students report on how frequent they attend to or make use of the various voluntary learning activities, i.e., lectures, group exercises, and voluntary assignments with feedback, and to what extent voluntary and mandatory activities and assignments stimulate a steady study throughout the semester. We particularly focus on voluntary assignments where students receive feedback on their work without any requirements of evaluation. The voluntary assignments are offered in addition to the existing mandatory assignments. Hence, our study differs from those comparing the effect of allowing students to choose their learning activities versus teachers’ determining learning activities (see e.g., Mizener and Williams (2009) and references therein). We expect the elements of both autonomy and feedback involved in the voluntary assignments to stimulate students’ motivation and engagement in learning.

The context

The course of focus and motivation

The course of focus is Introduction to economics. The course is taught in the first semester of the bachelor programme in economics and is where students encounter economics at the university level for the first time. For most of the students in this class, this course is also their first experience with the university. However, the course is also open for non-economic students, meaning that some students in the course have already attended the university for a year or more. The course, therefore, serves both as the foundation for further studies in economics and as a survey of the subject for students taking it as an elective in other programmes.

The motivation for focusing on the Introduction to Economics course is related to dropout rates in the bachelor programme in Economics. After experiencing a large proportion of dropouts in the bachelor program in economics over time, several measures were introduced to improve the learning environment and the learning outcome in the programme. In 2014, to compensate for students varying, and sometimes poor, background in mathematics from higher secondary school, a structural change was made to ensure that students finish the syllabus in Introduction to Mathematics for Economists (hereafter Introduction to Mathematics) before moving to a rather mathematical based course in microeconomics. Another measure was to increase the number of exercises where teaching assistants presented suggested solutions to problem sets to the students. However, after a few years, we experienced no change in the dropout rate.

An analysis on the dropout from the bachelor programme in Economics was then conducted in 2017. Contrary to what we expected, the analysis showed that the correlation between student performance (exam grade) in Introduction to Economics and performance in later courses in the bachelor programme was positive and stronger than the correlation between performance in Introduction to Mathematics and later performance. Moreover, reports from student reference groups in various courses in the bachelor programme suggested that the link between skills learned in Introduction to Mathematics and the content of later courses in Economics was weak, at least as perceived by the students. Introduction to Economics, however, teaches central micro and macro economic concepts and trains students in the independent application of these concepts to various sets of problems. This training creates knowledge and skills that may be more valuable in later economics courses than Introduction to Mathematics.

Therefore, one possible implication of the 2017 analysis is that measures to improve student performance in Introduction to Economics may also improve learning outcomes in other parts of the bachelor programme. The resource use in Introduction to Economics was therefore increased in the fall 2019 semester, which allowed exercises in smaller groups than before and a shift towards more student active exercises. Previously, teaching assistants presented suggested solutions to the problem sets in class while students passively took notes. Now, the teaching assistants were instructed to take a student-active learning approach by facilitating the students to develop answers themselves. The students were also divided into small groups (usually 4-6) who worked together on solving the problem set. The intention was to stimulate improved learning through active participation by students and to improve the learning environment and the feeling of belonging to the study programme through collaboration with peers. Although participation in the exercises was voluntary, attendance was high. In a student survey taken at the end of the fall 2019 semester of 148 respondents, 51% reported having attended 80-100% of the exercises and 40% attended 40-70% of the exercises. Of the students responding to the survey, 83% confirmed that working in groups gave them a stronger sense of belonging to the study programme than they should have done otherwise. Furthermore, 84% reported that working in groups increased their learning outcome.

The intervention

The Ministry of Education and Research runs an annual national survey, conducted by the Norwegian Agency for Quality Assurance in Education (NOKUT), to strengthen the quality work in higher education and provide useful information about educational quality. The survey asks for the students' perceptions of educational quality in their study programmes. Whether it is a good measure of quality is debatable, but there is no doubt that it has received increasingly more attention from students, institutions, and education policy makers over the recent years. One question in the survey is on how the students perceive opportunities to obtain feedback on their own work, and the bachelor programme in Economics has received a low score on this question every year since 2017, which is the first year that we had access to the results. The score is also low compared to NTNU and the national average.

In March 2021, as part of a larger package of measures to compensate for income losses for students due to restrictions to prevent COVID 19 infection, Norwegian universities received an additional grant from the

Ministry of Education and Research. The grant was earmarked for hiring students to work on research projects or as teaching assistants. The criteria were to spend the funding on measures that would contribute to better learning outcomes for the students themselves or other students, an improved learning environment and study progression. At the Department of Economics at NTNU, this funding was used to triple the number of teaching assistants (from two to six) in Introduction to Economics, which made it possible to introduce learning activities we otherwise could not afford within the regular budget. Due to the low score on the opportunity for feedback on their work, the students were now given the opportunity to voluntarily submit assignments for feedback from a teaching assistant.

Course learning activities

The learning activities in Introduction to Economics include two lectures per week, weekly exercises, and assignments. The course has three mandatory assignments. A fairly typical mandatory assignment is made up of 1-2 problems with sub-questions, with a total workload similar to what is expected in the five-hour exam. The assignments are due in two or three weeks, are reviewed by teaching assistants and are graded on a pass/fail scale. If a student fails one or several mandatory assignments, he/she is not allowed to sit the final exam. It is possible to resubmit a failed mandatory assignment once. The teaching assistants approve the assignment and provide written feedback. Because providing quality feedback is resource-demanding in such a large course (more than 300 students), students are strongly motivated to hand in mandatory assignments in groups of up to four students.

In 2021, the students were given the opportunity to voluntarily submit up to five assignments for written feedback from a teaching assistant, in addition to the mandatory assignments. The voluntary assignments were significantly smaller than a mandatory assignment and consisted of two or three sub-questions of the problem set given for the ordinary weekly exercise. These sub-questions were typical questions that offered a good opportunity to practice independent application and reasoning. The due time was one week after the publication of the problem set. The voluntary assignments were intended to improve student learning through the opportunity to acquire additional feedback on their work. Because there were no marks associated with it, we expected students to view this as a great opportunity to bring up problems and possible misconceptions to obtain as much supervision and follow-up as possible.

Survey and results

Design of the survey

The survey was voluntary and announced in November before the last lectures of the term were given. No group exercises and assignments, mandatory or voluntary, were given after the survey was opened. The survey was online, and the answers were anonymous. We informed the students about the survey on the course site on NTNU's learning platform, included reminders, and allowed students to complete the survey in the final lecture.

In total, 100 students participated in the survey while 390 students had signed up for the course and 317 took the exam. The difference between the number of signed up students and the number taking the exam was comparable to the previous years and is a result of students signing up to more courses early in the semester than they actually attend and follow throughout the semester. As long as the students cancel their registration before the exam, there is no cost associated with signing up for (too) many courses. Consequently, we get a better indication of the participation rate in the course throughout the whole term by comparing the number of participants in the survey to the number of students taking the exam. This gives a participation rate of 31.5%, which is obviously lower than expected and what we hoped for.

As the survey was voluntary, there is a concern that the respondents are not representative of the student population. To get more information about the participants, we compared data from the survey with information on observed participation in learning activities throughout the term. One of the questions was on lecture attendance and when comparing the answers with the actual physical attendance at lectures (counted by the lecturers) the numbers are congruent, which indicates that we have a selection of students attending lectures. We also compared the answers on the use of voluntary assignments and the number of submitted assignments (reported by the teaching assistants) and it appears that our sample covers most of the students who took the opportunity to submit voluntary assignments. Thus, there is a selection bias towards students participating in several learning activities. One interpretation is that lecture and exercise participation might reflect student motivation, indicating that the survey results give information on choices among students in the upper range of the "motivation distribution".

The use of voluntary individual feedback

As described above, the students were given the opportunity to submit five assignments and receive individual feedback from the teaching assistants. The feedback was given according to the students' preferences and was both written and oral. There was no limit to how many assignments each student could submit. In the survey, the students were asked if they had submitted any of the assignments and if so, how many. Table 1 summarises the results.

Table 1 Use of voluntary assignments with feedback

| # Assignments handed in | % Share of students |
|-------------------------|---------------------|
| 0 | 76 |
| 1-2 | 15 |
| 3-4 | 7 |
| 5 | 2 |

Of the students, 76% did not submit a single assignment for individual feedback and only 9% submitted more than two assignments. In total, the numbers in Table 1 imply that approximately 55-60 assignments were submitted. With the low participation rate in the survey in mind, we compared this number to the total number of assignments the teaching assistants had given feedback on. The actual number of assignments was only slightly higher, meaning that assignments from students outside our sample are negligible. When we relate this to the number of students taking the exam, it means that the average student handed in less than 0.2 assignments. Part of the motivation for providing voluntary assignments was the low score received on the students' opportunity to obtain feedback on their own work in the national student survey, and whether this score was a result of unsatisfied demand for feedback. The findings do not support this hypothesis.

To investigate why the majority of students rejected the offer of individual feedback, we asked the students to state their reasons for not submitting assignments. Table 2 presents the answers.

Table 2 Reasons stated for not submitting assignments

| Reason | % of students |
|---|---------------|
| Not aware of the offer | 2 |
| Did not find the time to do it | 30 |
| Followed a different progression than the course plan | 32 |
| The feedback on mandatory assignments is sufficient | 18 |
| Other | 20 |

The main reasons stated were lack of time and an individual study plan for the course deviating from that following from the sequence of lectures and exercises prepared by the lecturers. Many students with their own study plans is probably a consequence of streamed and recorded lectures that made it possible to watch the lectures any time after the lecture was given. The recorded lectures were available for the students up to the date of the exam. In terms of the three mandatory assignments, 18% found the feedback they received sufficient while 20% stated other unknown reasons. We did not ask whether participating in voluntary group exercises with teaching assistants present affected their choice. Oral feedback from teaching assistants during exercises might be a substitute for individual assignments with personal feedback and it might be less time consuming to the students as they can ask questions without writing an assignment. To investigate whether participation in group exercises crowded out other assignments, we used the individual answers from the survey. We recoded the binary answers for feedback assignments and the group exercises by creating two new variables ranging from 1 to 4. For voluntary assignments, the new variable takes the value one if no assignments were submitted and the value four if all were submitted. Correspondingly, for group exercises, the value equals that for the lowest category, i.e., participation in zero or one exercise, and four if the student participated in 6-7 exercises. Next, we looked at the correlation between these two variables. If the activities were substitutes, the correlation would be negative. However, the correlation coefficient in the sample is 0.3 and statistically significant implying that, to a large extent, it is the same students who submit assignments for feedback and participate in group exercises. To summarise, the assignments with feedback were in low demand and there is no indication that these activities substituted the use of the other learning activities.

3.3 Mandatory vs voluntary learning activities

The characteristics of Generation Z students as individualistic, learning by observation and the use of technology, suggests that they prefer voluntary learning activities. The low participation rate in lectures indicate the same: the students watched recorded lectures at home or did not follow the lectures at all. However, in meetings with student representatives and in the course evaluation reports, the students asked for more compulsory activity. It might appear to be a paradox that they do not want to be forced to attend lectures but they want to be forced to do assignments. In the survey, we asked how the students worked during the term and what made them work the whole term instead of postponing reading to the period just before the exam. The responses in the survey indicate that the mandatory assignments were more important than those that were voluntary even though we know that the students in the sample participated more in all learning activities than the average student. The final results for the exam are not yet available but there is no indication of a higher failure rate than in the previous year. This means that the students we never saw in the lecture auditorium or never submitted voluntary assignments, also acquired sufficient knowledge of the subject and we can speculate that the mandatory assignments were essential for this group of students.

4. Summary

In the Introduction to Economics course, we extended the learning activities by offering the opportunity to submit assignments to obtain feedback from teaching assistants. The motivation was twofold: a low score on feedback in the national student survey and testing the demand for more and varied learning activities. We were not able to test whether voluntary assignments had any effect on outcome measured by completion and grades, although we have information on participation in student activities as well as information on a survey conducted by the end of the term on students' choices of learning activities. Only a few students submitted voluntary assignments for feedback and the low score on feedback in the national student survey does not imply that there is a demand for more feedback on students' own work. Moreover, the opportunity to voluntarily submit assignments for feedback did not lead to greater heterogeneity in the student activity. In a situation where economic constraints force us to

prioritise between learning activities, there is reason to question the added value of this measure. It is the motivated students who did the voluntary assignments and who participated in other voluntary learning activities. If we are to draw any policy implications at all from this study, it might be that compulsory activity is what makes the students work continuously through the term. To follow up on this, we plan to conduct a new experiment in the same course during the fall semester in 2022 where the idea is to test if mandatory learning activities matter or not. The plan is to randomly allocate the students into two groups where one group will have a number of mandatory assignments that must be approved before they are allowed to take the exam, while the other group is exempt from approval but will be advised to do the assignments. The outcomes of interest will be student performance measured by the probability of completing the course and grades.

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Snowflakes – team learning as a tool; you are not better than your group.

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Abstract

The snowflake generation generally refers to Generation Z– born 1995-2012. This generation came about due to childhood overprotection (so-called helicopter parenting). They are less resilient and more prone to taking offence than previous generations. This paper addresses the concern of “being unique” and easily offended, which translates to the team concept of psychological safety. Our focus is learning in teams. Teamwork as an arena for learning and development is considered a fruitful approach in pedagogy. The purpose of this paper is to examine the value of the SPGR instrument related to learning in teams and show how SPGR can be used based on empirical data from teaching. The paper is based on a literature review on Generation Z, psychological safety and learning in teams. Our assumption with regards to the snowflake generation is that team training with special attention to psychological safety is of benefit to learning. To measure this, we employed the team instrument SPGR, which graphically depicts teams’ abilities to achieve psychological safety and thus learning. SPGR is a tool we believe is highly relevant for uncovering the learning environment for a team. Team members’ actions are viewed, not only as instrumentally related to the group’s task but also as transactions in building (or de-building) relationships with the team. Relationship transactions are labelled as control, nurture, opposition and dependence. First and foremost, we suggest that groups generally benefit from higher levels of psychological safety with regards to learning. Second, we emphasise the value of practice for learning. We need more empirical data related to Generation Z and in which team contexts they will thrive and develop.

Keywords

Generation Z, psychological safety, learning in teams, SPGR instrument.

Intro

The snowflake generation generally refers to Generation Z— born 1995-2012. The word ‘snowflake’ references their originality since all snowflakes are unique. This generation came about due to childhood overprotection (so-called helicopter parenting). Older generations brand them as fickle, sensitive, and having an exaggerated sense of what is politically correct. This generation is made up of digital natives, which means that these people know a lot about technology and learn new things quickly. Due to their lack of patience, snowflakes often find creative ways to solve problems. Consequently, they can adapt faster to changes. This is useful since the working world requires people who can adapt to anything. The snowflake generation also has unique problems that other generations often neglected. They are argued to “melt” easily and have less concern for others (more for themselves). They are less resilient and more prone to taking offence than previous generations (Collins, 2016).

In this paper, we address the concern of “being unique” and easily offended, which translate to the team concept of psychological safety. Our point is that a team of unique individuals functions at its best with high levels of psychological safety (Heldal & Sjøvold, 2021) and that it is also a better climate for learning (A. Edmondson, 1999; Heldal & Sjøvold, 2021). Briefly put, psychological safety is a team construct that denotes an ability to be oneself (McGrath, Arrow, & Berdahl, 2000), which translates well to the uniqueness of snowflakes – yet, this team ability, in turn, is very much based on members not being offended through an ability to gain mutual trust (Sjøvold, 2014).

Our assumption with regards to the snowflake generation is that team training with special attention to psychological safety is of benefit for learning through mitigation of offensive perception. To measure this, we employ the team instrument SPGR, which graphically depicts the abilities of teams to achieve psychological safety (and thus learning).

Theory

The task of the educator is to contribute to knowledge building and stimulate to strengthen problem-solving skills, creativity and critical reflection. How do you create value for Generation Snowflake students? Optimal teaching and learning occur when teaching styles align with learning styles Maheesh et al. (2021). Generation Snowflakes, most

commonly referred to as Generation Z, are described, understood and discussed from many different perspectives. Maehesh et al. (2021) refer to several studies that describe Generation Z. Descriptions that are highlighted and repeated include digital native, always connected, social, multitasking, innovative, optimistic, self-reliant, self-aware, entrepreneurial, achievers, confident, rule followers, true to authority, highly experiential and explorative, learning through activity, learning by doing and team players. Roseberry-McKibbin, Pieretti, Haberstock et al. (2016) emphasize that this generation values teamwork and collaboration and is motivated by working with hands-on creative tasks. Takács et al. (2021) examine how different generations of students handle studying and learning. Their approach is, among other things, to look at dealing with perceived stress and challenges in the learning situation. They point out that Generation Z has grown up with a culture of overprotective parents. This appears as a relationship that can prevent learning if one experiences meeting resistance or being challenged. The well-known expression in connection with learning and challenges – "fight, flight or freeze" can be used here. The understanding is then that Generation Z may be the most prone to flight or freeze, where fight is necessary for learning.

Our focus is learning in teams. Teamwork as an arena for learning and development is considered a fruitful approach in pedagogy. Generation Z also enjoys working with issues and tasks in teams. It may be that at the same time teamwork may create too many challenges precisely because it can be too great a challenge for an overprotected generation. Here, we take a closer look at learning in teams.

Learning in teams

Van den Bossche et al. (2006 p. 491) points out that "groups of people are increasingly acknowledged as the source of knowledge construction". Their research is based on collaborative work and cognitive and social learning. The cognitive perspective stresses the influence of group work on cognitive processes while the social perspective looks at the social factors constituting successful performance. They point out that these two perspectives on collaboration are profoundly intertwined. Within the cognitive perspective, knowledge and knowledge structures that the team members possess are recognised as essential for the team's performance according to Van den Bossche et al. (2006). Here, the research is concerned with "how individuals process information, how they assess and interpret situations and how they solve problems" (p. 492). The goal

is for the team to establish a fruitful and shared understanding of what they are facing, and how to solve the task in the best possible way. The cognitive structures and cognitive processes that are mobilised and developed take place in a team context. A strong team context means good cooperation, dialogue, exchange of opinions, social relations, etc.

The task of any team is to solve the task they have been assigned. In a learning team, as a purpose within a teaching context, they must acquire competence in a given academic topic such as economics, management, negotiations, etc. At the same time, they can increase their social competence in dialogue with others, increase self-insight into how they function and thrive in teamwork, and learn which conditions promote and inhibit good teamwork and collaboration. Experiences and reflections that an individual makes when acquiring knowledge of the many different topics will obviously also be able to strengthen his or her social competence and team competence. It is important to reflect on and have a dialogue about both the cognitive and social processes that take place. "What have we learned?", "What has contributed to learning?"

The potential for learning through good reflections and dialogue between team members is considered to be huge. Learning by doing and Kolb's (1984) theory of experiential learning are both highly recognised understandings of what creates the basis for learning (Heldal, Sacramento, & Wennes, 2017). The research here can be applied both in an individual learning situation and in a team context for learning. Working in a team and also reflecting on what is happening in the teamwork is consequently very important. For an educator, the task is to identify which conditions create learning, and contribute to these conditions being in place and/or developed in the team processes.

The team context can be identified and analysed in different ways. Themes to highlight can be the team's task, such as a learning team or a decision team. Furthermore, the difficulty and complexity of the task, the team's experiences and the social relationships between them, the team's size, and the team's composition may all be useful approaches. Our approach is to examine psychological safety in connection with teamwork. Dealing with the challenges and the resistance required is perceived as particularly demanding for Generation Z. In terms of the other elements that promote teamwork and learning in teams, Generation Z seems to not only cope with these but also embrace them and be motivated by teamwork. SPGR is our tool for discussing what creates psychological safety with room for critical and constructive dialogue and interaction.

Psychological safety

The psychological safety notion developed by A. Edmondson (1999) refers to a relationship that is safe enough that you dare to say things without being afraid. Make mistakes without being punished. That one is confident of being able to show oneself, i.e., my real self, without fear of negative consequences (Kahn, 1990). It is about trust. Ancona (2007) claims in her book *X-teams* that building trust within the team is useful and necessary, but something you should spend little time on at the beginning of a collaboration. Sjøvold (2014) goes even further and claims that the opposition dimension in SPGR, i.e., saying no, disagreeing, is something that should be implemented as soon as possible. Put another way: the forming phase of Tuckman is something you should spend very little time on. It is about the ability to take interpersonal risks in a particular context such as a workplace (e.g., Edmondson 1999) through a willingness to contribute ideas and actions to a joint task. For example, psychological safety helps to explain why employees share knowledge and information, take initiative in new product development, and speak up with suggestions for organizational improvements (A. C. Edmondson & Lei, 2014). Psychological safety may influence team learning activities because team members tend to choose their actions based on the level of risk they attach to them (Edmondson, 2003). Hence, in this sense, a natural consequence is that psychological safety promotes exploratory learning – in that people feel safe to adopt and express new views. However, (Kostopoulos & Bozionelos, 2011) find that it also promotes exploitative learning in a non-linear way.

Voicing up at the team level has proven to be positive for the acceptance of group decisions (Greenberg, Ashton-James, & Ashkanasy, 2007), and thus also group cohesion (Evans & Dion, 1991). Cohesion and a supportive atmosphere seem important for the ability to obtain a performance-related conflict. Task conflict is positively related to group outcomes such as cohesion, through the exercise of voice in team decision making. An important caveat to this relationship is that the effects of relationship conflict must be minimised, as task conflict may spill over into relationship conflict (A. Edmondson, 1999; Ensley, Pearson, & Amason, 2002; Jain, Thompson, Chaudry, McKenzie, & Schwartz, 2008; Jehn, 1995). In other words, task conflict has a positive influence on outcome variables, but only when it does not result in relationship conflict. This view asserts that relationship conflict will be negatively associated with team effectiveness (Tekleab, Quigley, &

Tesluk, 2009). Other researchers find that while conflicts may or may not lead to more cohesion, of greater importance is how you handle the conflict. More recently, conflict management research findings have shown that the effective handling of conflicts that arise during team interactions may produce direct benefits. Vliert, Euwema, and Huisman (1995) hypothesised and found support for the effect of conflict management on relational outcomes (e.g. mutual trust and quality of personal relationships), which are conceptually related to team cohesion (Evans & Dion, 1991). This empirical evidence suggests that teams with higher levels of conflict management may be likely to develop greater levels of cohesion than those with lower levels of conflict management.

Summing up theory

We thus argue that psychological safety, conflict management (with or without conflicts) may open up a process towards the sharing of mental models. In turn, this has positive connotations for the inclusion of snowflakes and even more so for the possibility of snowflake learning at the team level through behavioural development. This is especially through learning, at a team level, of not being offended, yet maintaining an individual perception. It should be noted that we do not depict a linear process and that processes occur iteratively. We turn now to a depiction of the students' learning process with the use of a visualization tool for team learning – SPGR (more thoroughly explained in the next section).

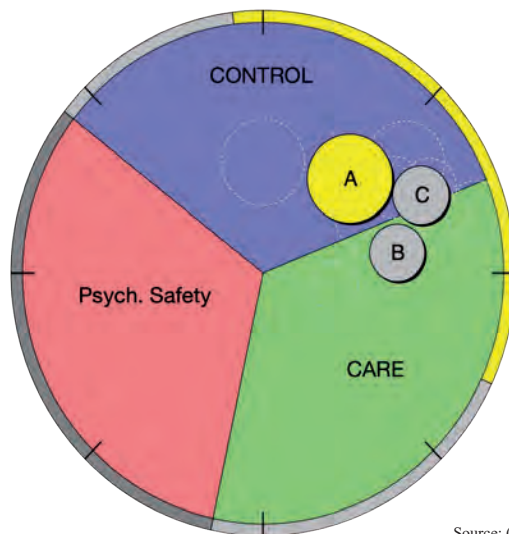
Method

In our investigation, we employ the stance of group behaviours and interactions as the important lense to investigate team learning and psychological safety. The works of Sjøvold are also important here, as they incorporate relationship transactions at a group level (see Sjøvold, 1995, 2006, 2007). Team members' actions are viewed, not only as instrumentally related to the group's task but also as transactions in building (or de-building) relationships with the team. In the so-called spin theory of groups, group functions encompassing such relationship transactions are labelled control, nurture, opposition, and dependence (Sjøvold, 1995). These behaviours are measurable through the SPGR instrument (Sjøvold, 2014).

The spin theory of groups is a further development of Bales' SYMLOG theory (Bales & Cohen, 1979) and integrates SYMLOG and Bion's (1961) theory of emotionality. The basic idea is that team members are all important actors in balancing various group functions in a way that is suited to address the specific problems that the group faces. Whether they succeed in doing this is a matter of how team functions are balanced and adapted to the task at hand. A successful team employs all the functions where appropriate, thereby obtaining balanced relationships within the team. Notice that this is not a fixed state, but one that fluctuates and is flexible according to both the dynamic context and in-group relationships. By doing this, we adopt an approach to what teams do rather than what they possess (Busenitz & Lau, 1996; Gino, Argote, Miron-Spektor, & Todorova, 2010; Liang, Moreland, & Argote, 1995).

The results from the survey are graphically produced, as shown in Figure 1 (this is the same picture as the students would view and reflect on). In addition to the three behaviours pertaining to each colour, the size of the circle denotes the intensity and influence of the behaviours (the bigger the circle, the greater the intensity and influence). Here, each letter denotes a person. We can deduce from Figure 1 that person A is exhibiting greater control behaviour than persons B and C, who exhibit more care behaviour.

Figure 1: The Spgr



Source: (Authors own elaboration)

The groups

Management students with different engineering backgrounds – similar to an MBA program – were investigated. These students were randomly assigned to teams consisting of groups of 3-5 students. All students pertained to the Z Generation. They did not know each other and were randomly distributed with regard to gender and age. There are entrance requirements to the programme, with students generally needing a level of B or higher. We also checked the students' overall rating during the programme with no significant differences between the groups. We have thus reason to believe that the students were evenly dispersed within the groups so that we can contribute the differences in performances to group interactions.

The setup

The task was to 1) come up with an innovative business idea and 2) develop a business plan for this idea. The business plan was to be presented to a professional business developer at the end of the course as an objective assessment. From the total of the 51 groups, this resulted in 19 As; 23 Bs; and 9 Cs. The level of the As approached the levels of real business ideas, with some later turning into business ventures. The business side of the ideas was developed according to the framework of (Osterwalder & Pigneur, 2010), and all teams were encouraged to work iteratively with potential customers and clients with their ideas as the core idea of design thinking (Lee, Ostwald, & Gu, 2020).

Team measurements

The teams were all measured with the SPGR instrument one week after the start (in the exploratory phase) and two weeks before the presentation of the plan. The survey was distributed electronically. Total N=213. The time span of the process was eight weeks. All tests were subject to coaching sessions with the first author. The teams should also hand in reflection notes at the end of the process (before they had the result of the assessments). The role of the first author in the coaching sessions was to explain the results and encourage group reflections. Actions were not suggested, this was up to the groups themselves (the first session). In the second session, the groups were encouraged to reflect on the effect of their chosen actions and movements within the SPGR room (Figure 1).

Findings

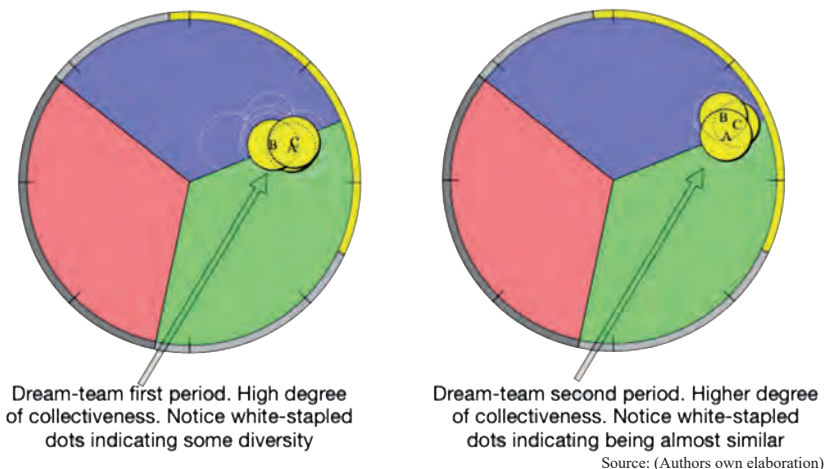
The groups were divided and analysed according to signs of psychological safety. Groups labelled A showed high levels while groups B and C groups showed signs of low levels of psychological safety.

Indicators of low psychological safety (inhibitors)

Group phenomena

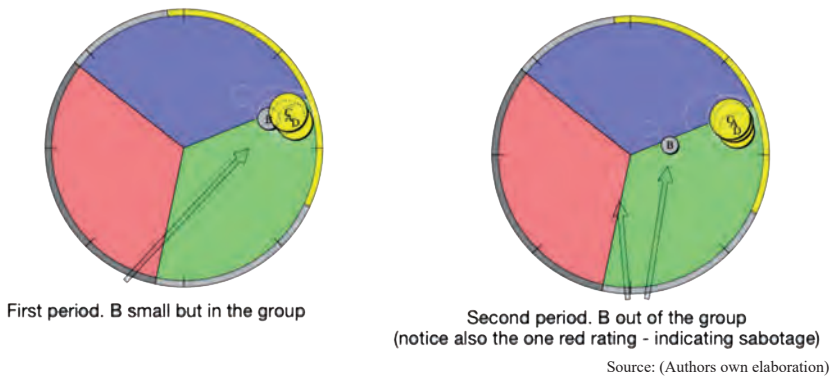
These groups were quite diversified (being the greatest in numbers), although with some common characteristics. In this batch, there were two occurrences of famous group dynamics phenomena. The first occurred with a group of three girls, who started by nominating themselves as the dream team. This group was tight, cohesive and according to themselves top-notch performers (from the start). At the half-term semester, the group showed clear symptoms of groupthink, especially with the SPGR team test where they rated each other as almost the same person (i.e., no diversity, see picture (figure 2)). In the group coaching session, they described themselves as almost untouchable and responded with aggressiveness towards the first author when he pointed out the perils of being all equal. Their belief in themselves was indisputable, the others were clearly wrong, and they rationalised collectively supporting each other. These are symptoms of groupthink (Janis, 1982) (see figure 2).

Figure 2: Groupthink



The other well-known phenomenon occurring in this batch was a group experiencing free-riding (or what they claimed to be free-riding). This group consisted of three people (two girls and one boy who found common ground early in the process and one boy who seemed to differ somewhat from the other three. Despite taking their differences into account and working constructively with them, they continued working very task-oriented. Halfway through the semester, the differences had grown so large (also apparent with the SPGR test - see Figure 3), that the three who had earlier found common ground, wanted to exclude the last boy, accusing him of free-riding, not supporting the group and even sabotaging the project (he was not).

Figure 3: Sabotage



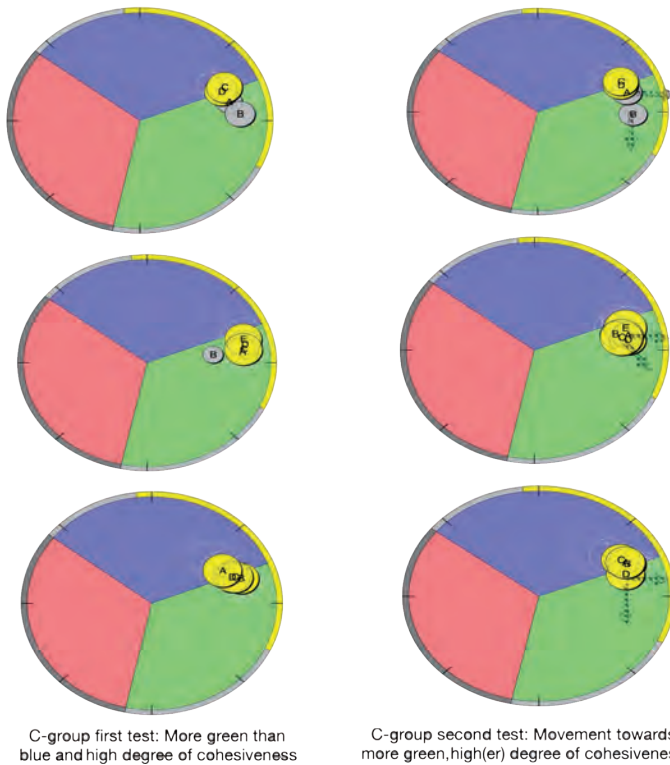
General levels of cohesiveness – going greener (as inhibitor)

From the start, many had an emphasis on social activities, making it fun, bringing in snacks. Half of these groups had such activities, self-reflecting on these activities as building the team and creating a more cohesive group. With regards to the perceived performance, these groups were on the whole very content with their group. It is not clear if they reflect on the group experience or the performance factor, but it seems that the group experience, either way, was more important (to be happy with the group). One of these groups even had its own social supervisor, responsible for satisfaction. Few of these groups reported challenges or conflicts, and many had problems in selecting the one idea to be developed. In the beginning, new ideas were continuously launched, seemingly because all were supported but further on, this resulted in stalemate and resignation.

Some contentions were observed, but these were not responded actively to by the groups. One conflict was observed and reported by the group themselves in the reflection notes. It was not actively attended to. The conflict originated with a very challenging, demanding and authoritative

team member – who despite not being the appointed leader made most of the decisions. The others withdrew, resulting on the whole in passivity. With regards to leadership, these groups had a happy go lucky approach, with rotating leadership roles (as suggested by the teacher) but an almost passive approach towards the leadership function. This was either being responsible for buying snacks or nothing at all (they were content and reflected in their reports that they did not need a leadership function, wanting a flat structure). As a whole, these groups were characterised by a rather low level of energy, taking a backstage attitude, speaking in low voices, turn-taking waiting for others, passivity and unclear decision making.

Figure 4: C-groups



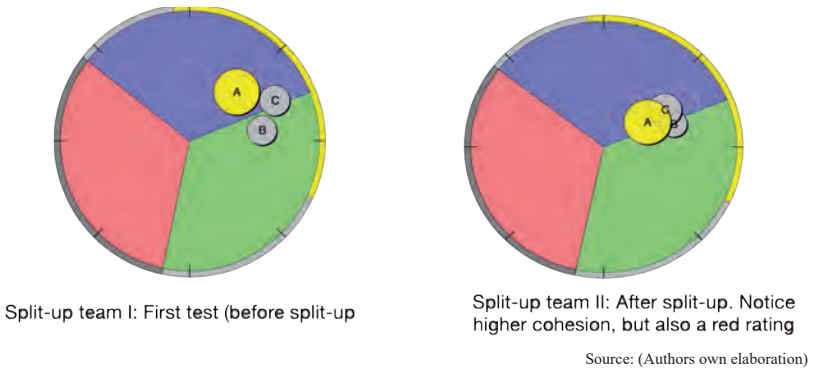
Source: (Authors own elaboration)

In general, referring to Figure 4, we can observe that a movement towards green is characteristic of the groups showing low levels of psychological safety.

Indicators of high psychological safety (exhibitors) – going red and blue

This batch all worked in different ways. One group had to split up because one of the members was ill and had to work from home (the whole period). Another group consisting of three members concluded after the coaching session that they would be better off working together, but not as a team (see figure 5). They split up, with two of the members working together, while the third member worked alone and only met together to decide on delivery and future tasks.

Figure 5: The split-up team

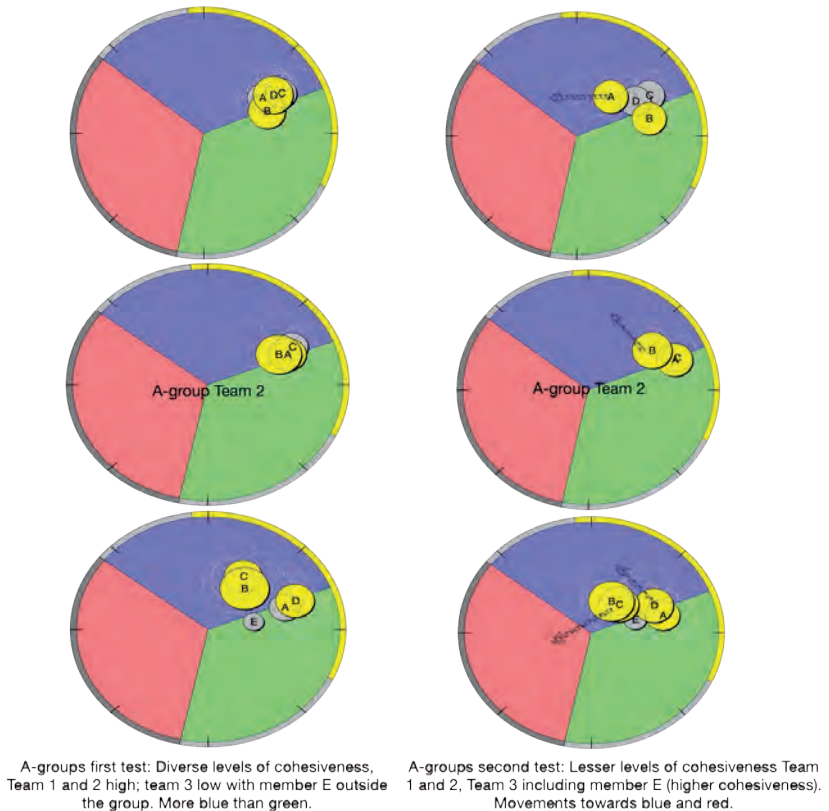


The other groups worked along the whole spectrum, from splitting the group towards being together most of the time. Only one of these groups had an espoused emphasis on social well-being within the group. Characteristically, all these groups worked systematically and disciplined with not only task orientation but also with team relationships. For instance, many of these would, as opposed to the B and C groups, fix team roles early (only two of the groups did not) and employ more formal roles than the other groups. The A groups would not only select a leader (as did some of the others), but also a secretary and some even a “devil’s advocate”. A clear structure appeared in how they rotated these roles. Leaders were firm and authoritative. As opposed to the C groups, these groups were quick to decide on the business idea to be developed. This necessarily involved assertiveness and discarding some ideas. They worked by challenging each other, both with tasks (e.g., delivering) and team relations (e.g., performing the role) from the very start. Approximately half of the groups (were) by coincidence subjected to the adversity they had to overcome. Common to these groups was that they dialogued

and communicated through adversity, employing honest feedback. The other half did not experience adversity, but still in much the same manner communicated and dialogued with honest feedback.

The coaching sessions would take the form of almost eager impatience and a reported list of things (from the groups themselves) that could be done better (how can we be satisfied when we have so much to improve?). In comparison, the B groups were more insecure and wandered, while the C groups were very pleased with themselves. The A groups were never completely satisfied with their work and group and were always eager to improve.

Figure 6: The A-groups



Source: (Authors own elaboration)

In general, referring to Figure 6, we see that a movement towards blue and red, coupled with the observations and assessment, are indicators of higher levels of psychological safety.

Discussion and Conclusion

Team learning and visualization tools – do they affect snowflakes?

Our assumption, with regard to the Snowflake generation, is as previously mentioned, i.e., that the team training with special attention to psychological safety is of benefit for learning. To measure this, we employed the team instrument SPGR, which graphically depicts the teams' abilities to achieve psychological safety (and thus learning). SPGR is a tool we believe is highly relevant for uncovering the learning environment for a team. SPGR is a validated model, and our purpose was to show its theoretical foundation and as a tool used in a learning situation. The investigation was conducted on management students, with a focus on snowflakes/Generation Z with their unique qualities and also on the challenges documented by other theorists and researchers.

First and foremost, we suggest that groups generally benefit from higher levels of psychological safety with regard to learning. This is the general point of A. C. Edmondson and Lei (2014). This in turn implies that it would also be positive for the individuals in the team; as team learning requires at least some form of individual learning (Heldal & Dehlin, 2021). The question is then: in what way will this be positive for the so-called snowflakes?

The definition of a snowflake is, as previously stated, an individual that is in some way overprotected, feels elevated (in relation to others) and is unique. It is here we present that the notion of working with other people to attain a result (teamwork) should generally be positive for people with this attitude. Adjusting and relating to others may be an issue for snowflakes, given their self-perception of elevation. Teamwork is highly regarded as a question of learning of oneself, mirrored in the perception of others (Heldal & Antonsen, 2014) – so a snowflake will necessarily need to at least reflect and maybe also adjust their own self-perception. A general problem for learning anything may precisely be the perception of oneself as above others – and putting this attitude to the test in a team may be a fruitful and educational experience for any snowflake.

Second, we emphasise the value of practice for learning. SPGR as a tool has proven to be valuable in the visualisation of behaviour as a form of practice, and also a reflection both in the team and individually. This, we argue that using the tool is both founded in the emphasis of Kolb's learning spiral and the group as a basis for any kind of learning (Van de Bossche et al. 2006). Learning and using SPGR as a tool is, of course, dependent on how the educator/coach uses it. It is suggested to use non-provocative, yet reflective questions to the group such as: What kind of behaviours do you see in the SPGR picture? What surprises you? What was expected? Important questions of WHY should be delayed until a relationship of trust is established, and the team has thoroughly explained what they perceive of the SPGR picture. The latter is an important basis for team learning and coaching behaviour (Caspersen & Halland, 2012).

We need more empirical data related to Generation Z, and in which team contexts they will thrive and develop. We recommend testing the team instrument SPGR where the dimensions of control, care and psychological security are measured two or more times during a learning period. The duration of the learning period can correspond to a normal learning period for a topic related to the same subject.

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Teaching of scientific structures for new generations

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Torberg Falch

Abstract

Science is systematic knowledge and systematization of empirical regularities. We argue that scientific structures are important in order to see true underlying patterns in the flow of information and “facts” that the new generation is facing. We argue that deep learning, where understanding of concepts and connections are gradually developed, and training in critical literacy, which emphasizes the ability to access the real content of meaning-making resources, can be facilitated by disciplinary-specific scientific models. The sciences exemplify economics and linguistics. We show that the didactics of two such distinct sciences, in light of deep learning and critical literacy, have several common features. Based on scientific structures, teaching can focus more on understanding and analyzing empirical data than on memorizing facts, rules and assumptions.

Keywords

Scientific structures; Markets; Grammar; New generations; Deep learning; Critical literacy.

1. Introduction

Science is systematic knowledge and systematization of empirical regularities. Real-world experiences have a twofold interest in this regard. They are of vital scientific interest by the possibility of exploring, exemplifying and substantiating scientific theories and structure. They are also vital to the extent that they do not fully accord to the existing systematic

knowledge. That might spur development in sciences or represent interesting variations that can be explained by existing theories and structures. Societies evolve, which changes how people interact and communicate. In turn, this must be reflected in the scientific structures or how we interpret and exemplify existing scientific structures. In research, we aim to develop scientific models that correctly and exactly describe empirical patterns. In teaching, central parts of these models can be introduced to students, so that they can handle data and start to understand how science works. The chapter is related to the concepts of inference and abduction used in teaching (see, e.g., Lawson, 2010).

Students are in an age group that are arguably the most exposed to societal changes in, e.g., human interaction and communication. They use markets and languages in new ways. Therefore, they are at the forefront of changes that might not be reflected in a satisfying way in existing scientific structures. At the same time, we argue that students must obtain a deep insight into science in order to reflect on the changes and place them in a relevant context, something that relatively new students cannot possess. Since the goal for all university studies is a deeper understanding of relevant empirical surroundings, it is necessary that universities thoroughly teach scientific structures.

On the other hand, the present student generation seems inherently different from past student generations in some dimensions. To the extent that they are more fickle and sensitive, this can influence their patience when acquiring scientific structures that from the outset they think do not concur with their own real-life experiences. Relatedly, they might find scientific structures of little interest.

This chapter seeks to explore these dilemmas. We use our knowledge from two different scientific disciplines: economics and linguistics. Both disciplines have some universal regularities (e.g., supply, demand, verbs, sentences) and important differences between cultures and countries. Historical paths and institutions shape both languages and economies. At the universities, we teach underlying abstract structures and use real-world examples. To some extent, the examples reflect new phenomena and changes over time; nevertheless, these are explained and accounted for through scientific models.

In section 2, we present the central underlying scientific structures in economics and linguistics, respectively. In section 3, we discuss the implications for teaching new generations of students. We draw on the new concepts of deep learning and critical literacy. Section 4 concludes.

2. Science and structures: Two examples

2.1. Economics

Within the science of economics, there are some main structures that have been taught in introductory courses at universities all over the world for decades. The basic structures are general and not related to specific institutions or contexts. They are supposed to apply where people meet and interact, in small and large environments.

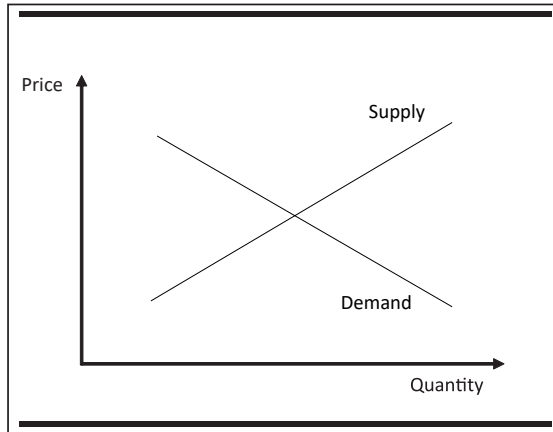
Arguably, the most basic concept in economics is the market (Sandmo, 2011). In a market, individuals exchange goods and services. In developed economies, a national currency is the most common intermediate in the market. Modern economies are characterised by specialisation. Less is produced in the households than in earlier times (e.g., food and clothes), and the economy is, to an increasing extent, based on buying and selling goods and services in markets.

At this level, the intuition of a market is at a very general level and well known to novice students. A market is a place or a platform for the exchange of goods and services. Trade occurs at the prices observed. However, to understand the mechanisms in a market, it is necessary to explore the behaviour of the agents in the market. This is when the theory becomes abstract and might, or might not, give a reasonable description of empirical observations. Since the market theory is meant to cover all types of markets, it is general and abstract.

The structure of market theory distinguishes between demand and supply. There are different actors, with different interests, on the two sides of the market. The sellers supply commodities in the market while buyers demand commodities. The general intuition is that sellers want a high price and are thus willing to put more commodities on the market when the price increases, while the buyers want a low price and are willing to buy more when the price decreases.

What are the objects of the agents in the market? The theory assumes that sellers are companies maximising profits – the difference between income from sales and production costs – and that buyers are consumers that maximise their well-being given some constraints. The structure is simple, but as a consequence, it ignores the characteristics of several large markets. For example, companies are on the demand side in several markets, buying commodities for their own production. Consumers most often do not buy directly from a producing company but a retailer.

Figure 1. The structure of a market



Source: (Authors own elaboration)

The advantage of the structure is that the theory can dwell deeper into the behaviour of the agents. On the supply side, a description of production is necessary. A production function is a general relationship between what is produced, the output from production, and the inputs used to produce. The main input is labour. It is not obvious how this relationship should be described. On the demand side, the main constraint is limited income. Consumers must prioritise within limited resources. But how can well-being be described?

The figure illustrates a market with potentially many actors on both sides. The behaviour of each type of agent must be somehow aggregated. They might passively adopt the price they observe, or they might actively try to influence the price. In particular, there might be a few producers of specific commodities, which give them the power to actively influence the market outcome. The structure of demand and supply is not sufficient to determine the price and the quantity sold in the market. Theories must also include structures on how markets operate.

This brief description is of a general-to-specific approach. More structure is needed to acquire a deeper understanding of the mechanisms in a market. It is an attempt to describe why theories must have structures, and how meaningful theories have to be simplifications of the real world in order to provide structures. During their university studies, students need to develop an analytical approach that considers the realism and implications of the different simplifications.

2.2. Linguistics

Linguistics comprises the study of language structure, use and variation. The systematic inquiry of structural patterns of a language is what constitutes the field of grammar, arguably the core of the linguistic system. Grammatical structures are in one way language-specific, in that word order, inflectional categories and morphology differ from language to language. Still, certain regularities and structure types are more general and are found across languages. These main notions and systems are fundamental within the scientific field of grammar, and they are taught in universities worldwide, more or less independently of theoretical preferences, i.e., they are theory-neutral.

Among the most fundamental concepts within the theory of grammar, are the parts of speech, for instance, nouns, verbs, adjectives, determinatives and conjunctions. The actual number of parts of speech, and also their labels, may vary between languages (Norwegian has at present ten parts of speech), as a sign that languages are structured differently, and that the role of grammar is to describe, not to predict language. Some languages “need” some categories more than others to describe the empirical reality of the language – showing that, as such, the parts of speech constitute a descriptive model. However, all the grammars of the worlds’ languages appear to exhibit the categories nouns and verbs – even though what in some languages is a verb can be categorised as an adjective in others.

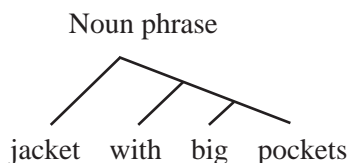
A basic division line in grammar is drawn between form and function. The grammatical form describes linguistic entities without any concern for their role and placement in sentences. The parts of speech are formal categories. A verb is a verb no matter what sentence it is a part of, and a noun is always a noun. On the other hand, the syntactic function of a word or a group of words addresses the role this word plays in the sentence as a whole and is thus dependent on where it is placed in the sentence. This means that the same linguistic item (identical form) can fulfil different functions in the sentence, as in the examples below, where the ball is always a noun but fulfils the role of a subject in 1 but as a direct object in 2.

1. The ball rolls down the hill.
2. Peter kicked the ball.

Thus, syntactic function concerns the structural relations between different linguistic items. Describing such relations is at the core of the theory of grammar and therefore comprises a large part of introductory

classes at university. To understand the structure of grammar, the ground distinction between linearity and hierarchy is crucial. When hearing or reading language, we encounter a linear string where words are placed sequentially, yet grammar seeks to describe the hierarchical relations between these words. Words are placed at different structural levels in a sentence, and some are also grouped together in larger constituents. And it is the constituent – not the single word that fulfils a particular function.

Structural hierarchy is manifest in the structure of phrases, where one linguistic item – the phrasal head – is more central than the modifiers, as illustrated in the figure below. In this phrase, the noun *jacket* is the head of the phrase, meaning that the other elements that are part of the noun phrase, are modifiers of the head and therefore structurally subordinated the head.



Structural hierarchy is also visible in the distinction between main clauses and subordinate clauses. Additionally, to account for varieties in word order, the processes of syntactic movement are postulated. In Norwegian, two main types of movement occur, namely verb movement (because Norwegian is a verb second language) and topicalisation, i.e., fronting of a constituent to the initial sentence position.

These basic structural patterns are used in the description of more specific linguistic grammatical patterns (in different languages and local varieties of different types). In university courses, the overarching insight that the student needs to reach – in addition to the actual grammatical patterns of the language – is that these interconnected systems and categories are not one given system. Rather, they are analytical tools developed to describe and explain empirical reality in the most precise way possible. In school, teaching grammar is mostly concerned with transferring knowledge about what characterises Norwegian grammar, and even more specifically what Norwegian grammar should look like – what are the normative rules? University studies take a more descriptive angle and seek to account for actual empirical linguistic data in society.

2.3. Common features

To interpret empirical observations, they must be related to something. Science establishes structures, models and terminology that makes it possible to use the same reference frame for classes of empirical observations. There is an “economics language” to talk about, reason and interpret phenomena and observations in our economies. There is a “linguistics language”, or a metalanguage, to discuss, reason and interpret phenomena and observations in our languages. The “economics language” is economic models; the metalanguage is grammar structures.

Scientific structures are necessary to generalise empirical observations descriptively, but they also make it possible to make normative judgements. Market theory in economics provides normative implications for the regulation of markets, and grammar provides rules for what is the correct and incorrect use of the language, particularly in written language. The normative aspects are important, but in our view, they cannot be detached from the positive aspects of teaching. If the structures do not coincide with the empirical observations of the students, the normative implications will most likely seem peculiar.

The interaction between general structures and specific empirical observations in teaching seems to a large extent to be similar for economic models and grammar. The use of international textbooks is much more common in economics than in linguistics. Economic institutions vary across countries to a lesser extent than languages. This might be the reason why there seems to be a stronger emphasis on theory at the cost of examples and empirical observations in economics than in linguistics.

3. How to make teaching of scientific structures meaningful for new generations

The characteristic of the so-called Snowflake generation is the focus on individual singularity (each individual is unique) and that they typically find it difficult to handle contradictory views. We will argue that a scientific approach in education, giving students experience with analysis of empirical data based on scientific models, which can result in different analyses depending on the theoretical angle, can be useful to mend this challenge. Moreover, modern society is often labelled an

information society, pointing to a context where individuals are constantly met with massive amounts of information they need to filter and understand through critical practice. In this section, we discuss two central features of the current curriculum in Norwegian schools and how these can be translated and built upon in teaching in higher education. We give examples from both economics and linguistics.

A central common term in the new curriculum for Norwegian primary and secondary schools is the notion of deep learning, also denoted as in-depth learning. The term has been subject to much discussion and different interpretations and in many cases linked to interdisciplinary aspects and insights developed from knowledge in several subject areas. The new curriculum from 2020 was built on an Official Norwegian Report on “Students Learning in the Future School” (NOU 2014:7). In this report, deep learning is defined as students gradually developing “their understanding of concepts and connections within a subject area. It also concerns understanding topics and issues across subjects or disciplinary areas. Deep learning implies that students use their ability to analyse, solve problems and reflect upon their own learning to construct a durable understanding”. For our context, this implies that a deep learning approach – at least in a few years – will be familiar to students who enter higher education. Yet, note also that Lødding and Aamodt (2015), in a study on the transition from university-preparatory programmes in upper secondary school to higher education, find that academic staff at universities consider students’ skills to be weak when it comes to evaluating information and arguments. They are more able to reproduce knowledge than to assess the validity of information, and they need to acquire a more critical attitude aligned with thinking and independence and strive towards a deeper understanding rather than width.

Deep learning thus refers to the gradual development of the understanding of concepts and methods in the subjects. It implies that students use their ability to analyse, solve problems and reflect on their own learning to construct a robust and flexible understanding. It is often contrasted to superficial learning, due to, for example, the situation that so many topics are mentioned in the curriculum that they can only be covered briefly. The development of deep learning seems to require alternating between teaching concepts and structures, reflecting on empirical observations/personal experiences, and the interpretation of the observations in a theoretical framework. The students need to be engaged in a process of inquiry.

Another central term in the Norwegian curriculum as well as in the international discourse, seen for example in the so-called 21st-century skills and the PISA assessment (OECD 2019), is the notion of literacy. The curriculum reform in 2006 has often been labelled a “literacy reform”, pointing specifically to the introduction of five basic or key skills (reading, writing, numeracy, oral skills and digital competence). In our context, it can be useful to introduce the notion of *critical literacy*. The general term literacy can, in a narrow sense, refer to the ability to read and write, yet more broadly it refers to a larger class of competencies, commonly characterised as “access competences”, i.e., competences to get access to the meaning of a text or other types of communication. At the basic level, this is necessary to be an active participant in society. As for the sub-term critical literacy, it implies undertaking an independent and exploratory attitude towards statements about the world, and understanding, identifying and describing the premises behind the statements (Luke, 2014; Veum & Skovholt, 2020). What is the real meaning, and how can it be interpreted?

Hence, critical literacy emphasises the ability to access the real content of meaning-making resources. This hinges heavily on critical thinking and analytical abilities. The development of these skills is at the very core of a university. It requires critical literacy to understand an advanced textbook or to understand and bring into use an analytical tool built on scientific insights.

Even though critical literacy is relevant to all scientific disciplines generically, there is also a need for a disciplinary perspective, as reflected in the call for the special issue of *Acta Didactica Norden* on *Critical literacy from a disciplinary perspective*. Critical literacy must be integrated into different disciplines on the premises of the particular disciplinary traditions. Skaftun (2015) states that within the singular subjects, one may recognise literacy as subject-specific professionalism. The students work with the discipline in ways that are in accordance with the familiar traditions within the discipline. We will argue that the scientific models and descriptions introduced from the economics and linguistics disciplines are examples of precisely such “subject-specific ways of working”, which can help students to explore and investigate statements about the world, or empirical data, which are relevant to that particular subject.

We thus argue that deep learning and critical literacy can be facilitated by disciplinary-specific scientific models that aim to describe and explain pieces of reality. Furthermore, we argue that this methodology will promote student active learning when the students are equipped with scientific structures through which they can reflect upon real empirical data. Then the students can discover the world through a scientific lens rather than simply being taught how the world looks or should look. Below, we discuss how this could work within the two disciplines discussed in this paper.

3.1. Economics

Section 2.1 presents economic models with a general-to-specific approach. The typical textbook has an opposite approach, see, for example, Nicholson and Snyder (2016). The traditional approach in teaching economics is to be precise on the assumptions for a model and then drill the model. There is careful attention paid to the mathematics of the models and/or the dynamics of the models by the use of figures. This is known as what is “on the table”, i.e., what we are discussing. The assumptions set aside complications that presumably do not include the main mechanisms in the real world. Although even economic models are simplifications, as are all scientific structures, they include multiple mechanisms that must be learned to understand the science of economics.

The challenge to this approach is that students easily become passive receivers of lectures. They might imagine many circumstances in which the assumptions of the model do not hold, and thus find the model too stylised to describe empirical observations. Are individuals really rational utility-maximisers? Do firms only care about profit? An alternative approach is to go in the opposite direction. By starting with empirical observations and empirical data, it could be possible to engage the students in developing main mechanisms and structures.

3.2. Linguistics

A fundamental principle in grammar is that postulated grammatical structures (for instance, constituent analysis) are miniature scientific models through which we attempt to describe parts of linguistic reality. Grammatical research will seek to develop these structures so that they describe linguistic data as correctly as possible, and through this also seek to explain how language is structured in the mind of

language users. In the teaching of grammar to students, a possible path could be normative and deductive, meaning that grammar lessons are about learning rules that can be applied to language so that the produced language will be correct according to that rule. Such traditional teaching often focuses on learning rules by heart and on rules of thumb, which supposedly makes it easier to remember (van Rijt et al., 2022). We propose to take the opposite direction, starting inductively with empirical data and through this developing and thus learning a coherent system in which these data can be analysed. The didactics presented in this section are more thoroughly presented in Nygård (2021). There are several important features of this methodology that deserve elaboration.

3.3 Common features

Interestingly, in our view, there are several common features of the didactics of economics and linguistics in light of the concepts of deep learning and critical literacy.

First, it is pedagogically valuable to learn a coherent system that can serve as an analytical tool. Obviously, this system needs to be simplified compared to detailed scientific models, yet it also needs to be able to display and explain central empirical patterns. Needless to say, the task of developing robust analytical tools, which are also sufficiently simplified to be suitable for teaching, is a didactic challenge.

Second, once such a common system or model is introduced, teaching can focus on understanding and analysing empirical data rather than memorising facts, rules and assumptions. Of course, it will also be a didactic challenge to choose and frame pieces of empirical reality that are suitable for the classroom. Sometimes, the data challenges the system and calls for a discussion of whether the model needs to be adjusted or if the data can be analyzed differently. In all, studying will then concern understanding structural systems and relations rather than rules of thumb.

Third, we argue that this way of teaching, through scientific structures, lays the ground for more exploratory practices. Inquiry-based teaching and learning do not only imply finding data and information from different and reliable sources, but it can also imply the seeking of logical relations, structural systems, categories from the sometimes-messy reality. Hence, we believe that such methodologies strengthen deep learning and critical literacy.

A didactic dilemma worth mentioning is whether it is most efficient to start reasoning from general systems or a more detailed and specific angle. This is partly connected to the issue of teaching deductively (rules or system first, then look at data) or inductively (look at data and try to understand the system through an empirical lens). In any case, these two perspectives must interact, and the teacher needs to establish a plan to develop a common analytical model. An argument to start from (accommodated) data is that these are probably more accessible to students. Another dilemma concerns whether one should aim at covering the most important issues in the field or whether it is more valuable to take time to work with complex and difficult problems where different solutions or answers are possible and comparable. We will argue that the students' understanding benefits from challenging tasks and from cases showing that established facts and rules are not always stated once and for all, but need to be interpreted, analysed and debated scientifically.

This methodology resonates with the so-called hypothetic-deductive methods in science, in which an explanatory model is developed to describe and explain pieces of reality. To investigate whether the model is correct compared to the real underlying system, one must deduce predictions from the model. If these predictions are correct when compared to new, relevant data, the model is strengthened. In the opposite case, the model is weakened. If new predictions are continuously deduced, and these predictions are parallel to new empirical data, the model is corroborated. Then it is often treated as true, and we usually reckon that the model can explain the observed data (Giere, 1997). See also Stenstad (2005) for an attempt to apply hypothetic-deductive reasoning in educational science.

4. Conclusion

Young students are citizens in a world where “facts” or data are both accessible and very present. Some of these facts are seemingly contradictory. Helping youth to analyse and see patterns from this flow of information is, in our opinion, a major task for (higher) education. We have shown how this can take place within the framework of two selected and quite different disciplines: economics and linguistics. Still, the ways of reasoning and thus teaching in the subjects, share certain similarities, such as the use of simplified scientific models to understand pieces of the world.

If students encounter such methods in several subject areas, it strengthens deep learning and provides them, from different angles, with the ability to be critically literate and to interpret facts and empirical data based on analysis. Rather than accepting all information as true, they are challenged to ask what a valid answer to a question would look like, applying science as an interpretative lens. We argue that this is a highly necessary skill that should pervade higher education, yet be embedded in subject-specific contexts so that young students are rapidly put in a position where they can understand and reflect on causal relations and systems. In our view, this is a question of empowering young generations, which in turn motivates learning.

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Snowflakes as Ph.D. candidates – are we prepared to supervise the new generation of postgraduate students?

Tomas Kincl

Abstract

This paper discusses the specific attributes of the so-called Snowflake generation, or rather Generation Z (Gen Z), which recently began entering the higher education (HE) system. Gen Z graduates will soon start to submit their postgraduate or Ph.D. studies applications. It remains a question of whether the HE institutions and supervisors are prepared to reflect Gen Z's unique attributes in study programme settings/management and supervisory styles. The first part of the paper discusses the Gen Z specifics and their learning styles in the HE context. Subsequently, an overview of Ph.D. studies and their development in recent years follows. The last chapter discusses supervisors and supervisory styles as the most prominent factor influencing Ph.D. candidates' dropout rates and satisfaction.

The conclusion is that we must develop procedures at various institutional levels to educate, support, or even supervise the doctoral supervisors and to adjust our doctoral programmes to better reflect the changing nature of today's Ph.D. education. To improve the performance indicators, but also candidates' satisfaction and well-being, the institutions must implement procedures that go far beyond considering the supervisor's research records, expertise in a given field, or a match between supervisor's and candidate's research interests. Non-functional aspects such as the alignment of supervisory and learning style should gain more attention to better reflect the specifics of Gen Z candidates.

Keywords

Higher Education, Post-graduate, Supervision, Supervisory Styles, Generation Z, Snowflakes.

Introduction

A Ph.D. is the highest level of study offered by HE institutions. As such, it is characterised by a number of specific features. Nowadays, people with a date of birth between 1995–2000 – who are often referred to as the Snowflake generation – are becoming Ph.D. applicants and entering Ph.D. study programmes. This paper aims to discuss the specifics of this generation in the context of supervising Ph.D. students and organizing/managing Ph.D. study programmes. The question is whether we need to rethink our current setting to better reflect the specifics of the new generation of Ph.D. students.

Are Gen Y and Z Snowflakes?

The term “Snowflakes” or “Snowflake generation” is usually considered to be coined by Chuck Palahniuk’s 1996 novel *Fight Club*, which was later turned into a film of the same name and released in 1999 (Hotton, 2017). However, some suggest the origins can be traced back to the end of the 19th century when the term was used to label those against the abolition of slavery. Some have found such a reference in slang language in the 1970s referring to a person of colour behaving like a white person (Goldstein, 2017). The term has become famous due to Claire Fox’s 2016 book *I Find That Offensive!* and made it to one of Collins English Dictionary’s 2016 words of the year. It referred to “the young adults of the 2010s (born from 1980-1994), viewed as being less resilient and more prone to taking offence than previous generations” (*Top 10 Collins Words of the Year 2016*, 2016). The term Snowflakes does not refer just to members of Gen Y/Millennials, but also members of the forthcoming Gen Z. It is used to denote the mentioned generations and oppose them to previous generations, e.g., baby boomers, Gen X. Young generations are accused of being overly sensitive, intolerant, immature, more prone to taking offence, often suffering from mental health issues and having a sense of entitlement (Alyeksyeyeva, 2017).

A substantial number of studies addressed the specifics of generations Y and Z. They appear to confirm increased depression and perceived stress, neuroticism, dependency, entitlement, alienation from peers, a lack of trust among colleagues, narcissism, lower levels of life satisfaction and self-acceptance, lower openness to new experience and dependency (Von Bergen & Bressler, 2017). On the other hand, some studies

concluded contradictory to what is widely accepted, e.g., baby boomers are actually more sensitive than millennials (Chopik & Grimm, 2019) or that college students are consistently the most tolerant of all in terms of limiting free speech (Sachs, 2018; Yglesias, 2018). Moreover, many studies are at least methodologically questionable, comparing apples and pears. The question is not whether Gen Z is, for example, more sensitive than baby boomers, but whether Gen Z is more sensitive than baby boomers were at the same age (i.e., on the verge of adulthood).

Some longitudinal studies compared generations of the same age – e.g., Patalay and Gage (2019), who reported significant differences in mental health and health-related behaviour, or Curran & Hill (2019), who found substantial differences in perfectionism measures. Still, a significant share of what Gen Z and Gen Y are accused of in the daily news and popular literature appears to be a bit too inclusive and stereotypical (Murray, 2018). The events that reinforce our perception of the snowflake generation are often exaggerated or lit up by social media (Tait, 2017).

This is not to say Gen Z doesn't have their specifics. Zoomers were raised by well-educated and affluent baby boomers, who wanted to give their children the best, but were also likely to closely monitor and manage most areas of their children's lives (helicopter parenting; Von Bergen & Bressler, 2017). Many colleges and universities are continuing the behaviour of helicopter parents, creating safe environments, and establishing systems of trigger warnings to help students avoid stressful events (Lukianoff & Haidt, 2019). Gen Z is also (especially in countries like the US) more racially and ethnically diverse than any of the previous generations (Parker & Igielnik, 2020). Zoomers are digital natives who did not experience the world as it existed before smartphones and other omnipresent technologies. They live in a hybrid space – online and offline simultaneously – which influences how they live, interact with the outer world and act as consumers (Šimůnková, 2019), but more importantly – how they learn.

Specifics of Gen Y and Gen Z in the learning environment

As Zoomers are more likely to pursue higher education (Graf, 2017), there is an extensive track in academic literature discussing Gen Z specifics in such a context. Most studies conclude that colleges and universities are no longer knowledge “gatekeepers.” The knowledge

is all around and available. Although young students might need guidance in seeking, sorting and synthesizing vast amounts of information while evaluating and checking accuracy and avoiding overload (Mohr & Mohr, 2017). Traditional schooling methods and approaches are no longer effective with the new generation of students. Classes based on frontal teaching, focusing on textbooks or pre-recorded audio do not reflect their learning style preference and are perceived as boring (Nicholas, 2020). Zoomers are easily distracted and do not keep their attention for long; the concepts must be delivered in smaller segments (Mosca et al., 2019). They prefer an independent learning style with a choice of what, when, and how to study (Iftode, 2019). With a flexible schedule, they require instant access, demand real-time interactions with teachers and peers, and favour multimedia resources (Yu, 2020). Technology and especially social media increase the quality of learning. Gen Z students prefer podcasts, websites, simulations, interactive tutorials, internet-based educational games or apps. They use social media for communication within the class and to share knowledge. (Hernandez-de-Menendez et al., 2020). Game-based learning seems to be more effective (Ding et al., 2017); students prefer mobile technologies where possible (i.e., expressing opinions, voting, completing assignments; Shatto & Erwin, 2016). Even if some studies report a lower preference for interpersonal learning (e.g., Seemiller et al., 2019), Zoomers seem to work very well collaboratively (Nicholas, 2020), benefiting from Team-based learning and collaborative environments (Chicioreanu & Amza, 2018). They prefer instant, interactive, engaging, practical, and experimental learning experiences (Mahesh et al., 2021). Learning assignments and outcomes should increase their ability for better employment and must have the potential to directly impact students' lives and their communities (Mohr & Mohr, 2017).

Zoomers are an increasingly diverse generation that brings equally diverse racial, gender, ethnic, cultural and linguistic backgrounds into the classrooms. Traditionally, the education system was more unidirectional, shaping the students' values. These days, students shape the education system (Kochlefl, 2019). Even though there is a substantial amount of literature addressing Gen Z specifics in higher education, there are no studies discussing this generation in the context of doctoral education. Yet this generation will have substantially different specifics from the previous cohorts of Ph.D. candidates.

The changing nature of Ph.D. education

Historically, doctorates were used at medieval universities to license those allowed to teach. Such a system worked for centuries until the early 19th century when von Humbolt introduced a new type of research-oriented university in Prussia, where the core mission was the creation and contribution to the original knowledge. Such a university required a new type of academic staff expected to engage in both teaching and research. The doctorate was intended as training for this new role, and the degree was awarded to those who presented a significant contribution to the state-of-the-art. Such a contribution was presented in the form of a thesis and defended at an oral exam in front of a committee (Archbald, 2011). This model of education – or rather individual training and preparation for a career in academia – spread quickly and was adopted before the end of the 19th century, especially in the United States (Yale, Harvard, Pennsylvania) and in other countries, e.g., Japan. The Anglo-American world adopted this model in the first half of the 20th century whereas Western Europe still used the professional ‘licenses’ system. By the end of the 1980s, most European countries also adopted the Anglo-American Ph.D. model as there was an increasing need to train high-quality researchers to keep pace (in academic but also industrial research) with the mentioned countries (Ash, 2006).

Eastern Europe followed its own way through a model of a two-step doctorate (CSc., *candidatus scientiarum*, referred to as ‘small doctorate’ and DrSc. doctor scientiarum referred to as ‘big doctorate’). The candidate could earn the degree either at the universities or research-oriented institutions, i.e., Academies of Sciences (Winters, 1994). The fall of the ‘Soviet bloc’ in 1989 led to a reorganisation of the graduate education system and the adoption of the Western Ph.D. model (Connelly, 2000; Sarmir & Zajac, 1998).

Previously, the doctorate was a highly individualized process: rather a mentorship than a study. The candidate worked autonomously, while the supervisor provided guidance based on a master-apprentice model. The supervisor did not actively intervene and (if teaching at all) taught by leading by example. The supervision was not formalised and tended to be a private relationship. In terms of duration, there was no limit – completion took as long as it took, and the candidate was ready when ready (Archbald, 2011). However, in the face of rapid changes induced with the end of the 20th century and especially with the beginning of the 21st century, such a supervisory style was no longer justifiable.

During recent years, doctoral education has undergone fundamental changes. Taylor (2012) pointed out the main research education development areas, which are becoming even more evident today. Historically, the institutions did not pay much attention to whether the candidate earned the degree or not. However, the squeezing of public budgets and concerns about the learning outcomes have led to regulation and formalisation of the studies. Ph.D. studies, as well as supervision, have become a heavily regulated area, often being subject to (inter) national standardisation or accreditations. The pressure on completion times and success rates has led to Ph.D. education that nowadays has become more structured at both programme and institutional levels, with carefully specified learning outcomes, milestones and other formal components, and with rigorous monitoring procedures (González-Ocampo et al., 2015; McGloin & Wynne, 2015). Some even refer to the McDonaldisation of Ph.D. education (Taylor, 2012). However, the question remains as to what extent the increasing formalisation of doctoral studies and the emphasis on pass rates allow for non-functional aspects such as the personal match between the supervisors and the students' style (Kandiko & Kinchin, 2010).

In recent years, the number of Ph.D. applicants has grown rapidly, significantly increasing the demand for supervising capacity. Supervisors are regularly required to accept more than one student at a time (in the Czech Republic, the HE institutions usually set an upper limit of five doctoral students supervised in parallel; some countries or universities set the limit ever higher). Not only have the doctoral studies been massified, but the traditional master-apprentice where the student unconditionally accepted the supervisor's opinion has also shifted. The supervisor and the student's relationship has transformed into a more client-oriented provider-consumer bond. Students are more likely to request a supervisor's assistance when the research project derails from expectations or falls behind schedule. The supervisor is expected to be much more proactive on behalf of the student. This also applies to the study programme management. The supervisors (and the institutions) are presumed to nourish and nurture the relationship with a candidate (Lee, 2018; Motshoane & McKenna, 2021). It has become the supervisor's and institution's responsibility to ensure the candidate dropout rates remain low and the students defend their theses within the allotted time.

The candidates for Ph.D. studies have also become more diverse. Doctoral candidates used to be predominantly young, male, white, single, (probably) heterosexual, and with no disabilities. These days,

many of the candidates are females (more than a half in some fields), gender variant or nonconform, diverse sexual orientations, often working full or part-time, in their thirties or older, in various family situations, from ethnic or racial minority groups, or with disabilities (English & Fenby-Hulse, 2019). Moreover, many Ph.D. candidates study their doctorates in countries different from their origin (Audsley, 2019). This is indeed enriching for all the participating sides; it also brings the clash of diverse cultural backgrounds into question (Elliot & Kobayashi, 2019; Manathunga, 2013). As the students are heterogeneous, their motivation is also diverse. Many of them do not want to continue in academia after the thesis defence and pursue their careers in other areas, i.e., business or industrial research.

Furthermore, contemporary research often requires perspectives from multiple domains. Such cross-fertilization often reaches beyond the expertise of a single supervisor, demanding collective efforts. Joint supervision may not be limited to various departments of a single institution but could include experts from other (not only research or educational) organisations, often reaching across countries or continents (Mountford et al., 2020). All the above-mentioned elevates today's doctoral education to new levels, reflect the current world better and represent an opportunity to enrich and further develop all participating sides. On the other hand, the relationship between supervisors and students (or institutions and students) becomes more manifold, potentially conflicting over various stances, opinions, perspectives, interpretations, backgrounds, personalities, supervisory roles and styles.

This is not to say that Zoomers have originated the aforementioned changes that institutions and supervisors are experiencing. They have just begun entering our Ph.D. programmes, and the changes have been around for some time. Yet some of the specifics of this generation may further exacerbate the challenges we face. From what we know from their undergraduate and graduate education, they are prone to questioning what has been implicit and granted. They seek a predictable and controlled environment. They are stressed by risk and uncertainty, which is an inherent part of the research journey. They might be more prone to taking offence than previous generations and are not afraid to raise a complaint or concern.

The diversity of fresh Ph.D. candidates is disproportionately higher than those who participate in doctoral education. This is why diversity management has become one of the main challenges of the Ph.D. programmes. The supervisor's field of expertise, their own and the stu-

dents' mutual research interests, still play an important role when assigning fresh Ph.D. candidates to their tutors. However, more attention must be paid to curricula transparency, clarity of all directives and the conditions related to the study programmes, and especially matching the supervising and learning styles.

Supervisory styles, supervisors' competencies, and roles

Concerning the increasing formalisation of Ph.D. studies, there is also a growing tendency to monitor and subject them to performance evaluation (Lahenius & Martinsuo, 2011). The performance metrics include all levels of the education system, i.e., universities, faculties, departments, but also educators or supervisors. However, most HE institutions suffer from high dropout rates, and it is common for more than half (in some cases up to 70 %) of Ph.D. candidates who enter the programme to fail to complete their studies (van Rooij et al., 2021). In the Czech Republic, the situation is no different – only about 7% of students complete their studies on time, and the overall success rate is around 40% (MŠMT, 2020). As Ph.D. candidates often contribute significantly to institutional research, high dropout rates challenge universities financially. Not only do students not participate in generating the scientific outputs that influence institutional funding, but Ph.D. studies are (especially for the unsuccessful candidates) extremely costly (Horta et al., 2018). Dropout rates, however, may also have nonfinancial impacts, i.e., on the reputation or public standing of the HE institution (van Rooij et al., 2021). In the last decade, the number of publications on supervision reflects the growing interest in proper doctoral education management, supervision, supervisory styles and supervision perceptions (González-Ocampo & Badia, 2019).

There is vast literature on Ph.D. studies success predictors. Typically, the studies emphasise three distinct categories (Jiranek, 2010; Van de Schoot et al., 2013): (1) institutional or environmental factors, including the departmental culture, financial support (Maher et al., 2004), but also support from peers (Boud & Lee, 2005) or employers (Martinsuo, 2007); (2) individual Ph.D. candidate characteristics, i.e., background characteristics – gender, age, ...; behavioural and psychological characteristics – personality, motivation, ... (Orellana et al., 2016), and (3) supervision-related factors such as the supervisory style (Boehe, 2016) and the relationship between the supervisor and

Ph.D. student (Bair & Haworth, 2004). The literature clearly highlights the significance of high-quality supervision for Ph.D. studies completion and Ph.D. candidates' satisfaction (Armstrong, 2004; Bair & Haworth, 2004; Brown & Atkins, 1988; Buttery et al., 2005; Cullen et al., 1994; Green, 2005; Johnson et al., 2000; Kolmos et al., 2008; Latona & Browne, 2001; Pearson & Brew, 2002; Pyhältö et al., 2015; Skakni, 2018; Spaulding & Rockinson-Szapkiw, 2012; Stubb et al., 2011; Taylor et al., 2018; Vilkinas, 2008; Woolderink et al., 2015; Zhao et al., 2007).

Abiddin et al. (2011) suggest the four domains of skills a supervisor requires: (1) communication skills (including the ability to listen and to provide feedback in an open, objective, and constructive manner); (2) support-oriented skills (including the ability to recognize the moment a student needs help and to provide the support); (3) general skills; and (4) skills specific to the candidate's field of research. In addition, a successful supervisor must be a competent researcher and must be able to reflect such competence to make the supervision effective (Taylor et al., 2018). Brown & Atkins (1988) suggested a long list of diverse (and often jointly challenging to achieve) supervisor roles:

Table 1: Supervisor roles (Brown & Atkins, 1988, p. 120)

| | | |
|---|--|--|
| 1. Director (determining topic and method, providing ideas) | 5. Guide (suggesting timetable for writing up, giving feedback on progress, identifying critical path for data collection) | 9. Friend (extends interest and concern to non-academic aspects of student's life) |
| 2. Facilitator (providing access to resources or expertise, arranging field-work) | 6. Critic (of design of enquiry, of draft chapters, of interpretations of data) | 10. Manager (checks progress regularly, monitors study, gives systematic feedback, plans work) |
| 3. Adviser (helping to resolve technical problems, suggesting alternatives) | 7. Freedom giver (authorizes student to make decisions, supports student's decisions) | 11. Examiner (e.g., internal examiner, mock vivas, interim progress reports, supervisory board member) |
| 4. Teacher (of research techniques) | 8. Supporter (gives encouragement, shows interest, discusses student's ideas) | |

This is a diverse set of roles that cannot be fully fulfilled, moreover, in a situation where it is necessary to recognize what role a Ph.D. candidate would need with regard to the stage they are at in their studies. If the supervisor is working with multiple students at the same time (at different stages of their studies), the need to cover different roles

simultaneously arises. The difficulty increases even further when dealing with students with diverse individual characteristics (i.e., a fresh graduate Gen Z student together with a mature candidate with long-term business expertise).

Supervisory roles can be performed in different ways (supervision styles). The choice of an appropriate supervisory style and the impact of a supervisory style on the success of doctoral studies have been the focus of studies for several decades, given the increasing formalisation of postgraduate studies. For example, Grant (2005) discusses supervision from the perspective of social discourse and analyses the conditions under which the various supervision styles are the most appropriate. Murphy et al. (2007) identify four distinctive orientations to supervision differentiating in terms of two distinctions – controlling × guiding and task-focused × person-focused beliefs. Wright et al. (2007) identified five qualitatively different approaches to comprehending supervisors' roles and concluded there are significant differences in supervisors' perceptions of what supervision is. Deuchar (2008) studied barriers that may impact the effectiveness of the supervisor/student relationship. Lee (2008) identified five interdependent supervisory approaches based on the major tensions that often occur when supervising Ph.D. candidates – functional, enculturation, critical thinking, emancipation and relationship development. Halse and Balsen (2012) perceived the doctorate as a mix of supervision, pedagogy, and experience, and strive to reframe supervision as a learning alliance of mutual responsibilities, respect, flexibility, and communication. Gatfield (2005) conceptualised a widely recognised model of Ph.D. supervisory management styles. He distinguishes between the two key dimensions of supervisory styles; namely structure (i.e., how supervisors understand their roles in the organisation and management of a student's research project) and support (i.e., how supervisors grasp their roles in personally supporting the students). Based on the dimension's low/high values, four paradigms of supervisory styles can be recognised. The 'laissez-faire' (low support/low structure) is a style where the supervisor only plays a minimal role in the organisation and management of the research project nor offers any personal support to the candidate. The 'directorial' (low support/high structure) is a style where the supervisor plays a significant role in organising and managing formal aspects of the studies; however, it leaves the personal support and comfort up to the candidate. The

‘interventional’ (high support/high structure) is a style where the supervisor significantly intervenes in both organising/managing the research project and providing personal support to the student. The ‘pastoral’ (high support/low structure) is a style where the supervisor provides strong personal support; however, it leaves the candidate to organize and manage their studies independently (Gatfield, 2005; Taylor et al., 2018).

This is not to say that Gen Z requires a ‘brand new’ supervisory style or that the styles mentioned above are right/wrong or one is more valid than the other. After all, as long as the supervisory style is congruent with the needs and preferences of both the supervisor and the candidate, there should be no problems or difficulties (Malfroy & Webb, 2000). On the other hand, Vehviläinen and Löfström (2016) criticise the traditional supervisory discourse as the main source of challenges in the supervisor/student relationship and identify a process-oriented dialogical supervision style as an emerging approach. Such discussion embodies assumptions not only about supervisors, their expertise as scholars and researchers but also about the capabilities and needs of the candidates. Therefore, the question for today’s supervisors is not necessarily the choice of the most suitable supervisory style, but maybe the selection of multiple styles carefully chosen according to a given situation, context, or candidate – or even more challengingly, a choice of a combination where the styles mingle continuously. Moreover, as other aspects grow in importance, the supervisor’s expertise/research record or match between the supervisor’s and the candidate’s research interests may no longer play the most prominent role in deciding the candidate’s assignment (Cardilini et al., 2021). This is why many HE institutions have developed personal questionnaires (e.g., Mainhard et al., 2009) to assess the personal characteristics of the supervisors and candidates to nurture the symbiosis between the two even further. Such an approach has become even more important when matching supervisors and candidates from diverse cultural environments, establishing supervision teams consisting of multiple supervisors, or when more and more activities are happening remotely or moving online. Still, the development of supervisors remains relatively new and under-researched in the literature, as well as often going unaddressed at the HE institutions (Lee, 2018).

Conclusion

Calling the whole generation of Zoomers Snowflakes seems a bit unfair and insulting. The statistics do not necessarily bear it out. Still, Gen Z presents significant challenges to the education system on all levels. Growing numbers of more diverse Ph.D. candidates initiated a debate about the factors that go far beyond factors such as the supervisor's research records, expertise in a given field, or a match between the supervisor's and the candidate's research interests. Non-functional aspects, such as the alignment of supervisory and learning style are gaining more attention, as they influence not only the performance indicators (i.e., candidates dropout rates or achieved scientific outputs) but also impact (not only) candidate satisfaction and well-being. Therefore, we must develop procedures at various institutional levels (i.e., educational/academic development centres, research student support and human resource management centres, research offices) to better educate, support, or even supervise the doctoral supervisors, and to adjust our doctoral programmes to better reflect the changing nature of today's Ph.D. education.

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Advocating a pedagogy of kindness

Paula Rice

Margrethe H. Bakke

Abstract

Labelling the current generation of learners as snowflakes is problematic, enabling a deficit view of learners that stigmatises those who have mental health issues and devalues diversity and diverse ways of thinking. This current generation is actively engaged in wider social justice issues, endure negative comments via social media, and can successfully use digital technologies in their own learning. Teachers should find ways to value all the experiences that learners bring to the classroom, teaching them in ways that make use of what they know to enhance learning for their future lives. To do this requires a different pedagogy from many of those still used in higher education. We suggest that the aims of critical pedagogies align with the needs of both current learners and wider society. In particular, we propose the use of a pedagogy of kindness as a way of reconceptualising the way we view our learners and our relationship with them.

Keywords

Snowflakes, generation Z, learning preferences, critical pedagogies, pedagogy of kindness.

Introduction

The current generation of students has been labelled snowflakes by some commentators. The genesis of this term in relation to students is problematic because it has not emerged from any empirical data and is negatively charged in terms of meaning. A consideration of learner needs from the perspective of a negative characterisation may be framed as ‘pandering’ to learner demands without considering broader eviden-

ce on good learning, in itself appearing to justify the description of today's students as 'snowflakes'. It also positions learners as unable to navigate the world as it is, requiring constant help and vigilance from people who know better about what they need. This removes learners from being central to their own learning, which in terms of education is regressive and goes against much of the recent research on learning.

Therefore, this conceptual paper proposes using a pedagogy of kindness as developed by Denial (2020) and Gilmour (2021), which enables and empowers today's learners through understanding them as individuals that can contribute valuable knowledge to their own learning, and that values them as human beings. Teaching is not seen as something which will either 'fix' students' weaknesses, or that needs to be adjusted to compensate for some inherent generational fault. This pedagogy supposes that teachers approach learners with what Carl Rogers' described as 'unconditional positive regard' (McLeod, 2014: n.p.) and that through this, these students can build the knowledge and skills that they need to become their future selves.

We begin with a discussion of the term snowflake and what it means for the current generation of learners in higher education. This is followed by an exploration of how this generation is choosing to learn and how universities and teachers can contribute to this through pedagogical approaches, proposing the pedagogy of kindness as particularly relevant.

The problem with 'snowflake'

The description of an individual as a 'snowflake' is attributed to Palahniuk's *Fight Club* (1996, in Webster and Rivers, 2019: 531-532), where it is used to emphasise that the focus is not on individuality, regardless of what one believes about the uniqueness of oneself, but rather on the groups they belong to. A snowflake comprises the attributes of a mistaken identity one has about one's own specialness, which, ironically, has now become the attributes of an entire group. Collins Dictionary defines it as 'the generation of people who became adults in the 2010s, viewed as being less resilient and more prone to taking offence than previous generations' (Alyeksyeyeva, 2017:7), demonstrating that the term is invested with negative connotations that supplant the denotation, turning snowflake into a pejorative label. In 2016, The Financial Times listed snowflake in its annual Year in a Word list and defined it as 'a derogatory term for someone deemed too emotionally vulnerable to cope with views that

challenge their own, particularly in universities and other forums once known for robust debate' (Alyeksyeyeva, 2017:7). Snowflake was also labelled 'the most combustible insult of 2016' (Nicholson, 2016: n.p.).

The post-millennial generation for whom the term Snowflake has been mockingly employed to describe are also commonly known as Generation Z (Dimock, 2019). They are perceived to believe in their uniqueness and specialness and have been criticised for what has been characterised, particularly by right-wing media, as their low levels of tolerance, the speed at which they take offence (Haslop, O'Rourke, and Southern, 2021:2), and their general emotional weakness and lack of resilience (Haslam-Ormerod, 2019, n.p.). Despite attempts to emphasise the positive attributes of snowflakes (e.g., the British Army's use of the term in a 2019 recruitment campaign), it is generally used to undermine and disparage an entire generation (Haslam-Ormerod, 2019, n.p.). Haslop, O'Rourke, and Southern (2021) note that the critical designation of youth in this way is driven by the media who use anecdotes, and subsequently stereotypes, to describe how this generation behave and react, rather than any kind of empirical data that might provide different and more nuanced observations and interpretations. The success of the media, particularly the alt-right media can be seen through the consideration being given to the concept of a snowflake generation in academic discussions.

The negative portrayal of a generation as hypersensitive, easily upset, and unable to tolerate ideas that counter their own is pernicious because it enables attacks on individuals for being emotional and sensitive and condemns these characteristics as undesirable. Haslam-Ormerod (2019, n.p.) easily links this to the continued and accepted stigmatisation of young people with mental health issues. The term is also associated with higher education students (especially in the UK (Haslop, O'Rourke, and Southern, 2021:2)) and its applicability to long-held characterisations of university students (Webster and Rivers, 2019:532). The challenges that face many students in higher education are therefore downplayed and minimised by giving credence to the belief that a generation of 'snowflakes' actually exists. Haslop et. al. (2021) argue that students live with online bullying and tolerate high levels of harassment and digital abuse (p.14) and that those who have objected to some of this have earned the title snowflake. These are often groups whose voices may already be marginalised, such as women, particularly those at the intersections of diversities. Alyeksyeyeva's claim that 'snowflake has no other function in debates and no other meaning but that of negative labelling one's opponent' (Alyeksyeyeva, 2017) is thus supported by a vast majority of the literature on the concept.

Learning preferences

Claims have been consistently made about the different learning requirements of successive generations. For example, Vokić and Aleksić (2020) suggest that active learning is appropriate to some Generation Y learners, while Albadi and Zollinger (2021) discuss the multimodal learning styles of Generation Z. Regardless of how we identify or label the generation of students that we currently have in our lectures, there is little debate that they are a ‘unique cohort whose needs, expectations, perspectives, and aspirations are different from those who entered college before them’ (Seemiller, 2017). Jerusha O’Connor, in an interview with Carlson (2020) discusses a rise in campus activism and students increasing engagement with social justice issues, particularly in their focus on intersectionality and the relationship between the issues they support. This is echoed by Seemiller (2017) who describes this generation as prioritising acting on the roots of global social problems over more local, short-term action on the symptoms of these issues. They interact with diverse groups on campus as well as globally through social media, so students are therefore key actors in social change outside the classroom. They bring to this their experience with innovative technology and a range of digital tools, as this generation is widely acknowledged to be ‘digital natives’ (Cilliers 2017, Seemiller 2017, Albadi and Zollinger 2021, Mosca et al., 2019).

These aspects of this generation mediate their learning preferences. For example, Seemiller (2017) describes them as learning through observation, using online videos and social media posts as instructional tools, building habits of independent and intrapersonal learning and a hands-on approach. She also describes them as preferring learning that can be applied to more than one area of their lives and is therefore relevant to issues that go beyond the classroom. There are pedagogical approaches that reflect both the concerns of current learners and their preferred learning styles. These generally fall within critical pedagogies associated particularly with writers such as Freire, Giroux, and McLaren. Critical pedagogical approaches aim to empower learners by revealing and critiquing oppressive power structures (Stommel, 2014), engaging learners in the work of questioning their social contexts (Cammarota, 2012) and enabling them to effect change for themselves as individuals but also for their wider society. Mosca et al. (2019) suggest that learning that

empowers comes through interaction and exchange of knowledge among learners, enabling them to connect relevant learning to their future selves.

Higher education has often been criticised for its slow uptake of innovations in pedagogy and lack of focus on teaching (e.g., Fried, 2012), continuing to favour speaking to students about knowledge that has already been developed (Fried, 2012, p.5). Fried (2012) points out that students today are constantly bombarded by different perspectives from the different information sources now available 24 hours a day and that this has ‘undermined some of the positivist foundations of Western secular higher education’ (p.14) regarding the nature of knowledge. One of the new roles of education should be to enable students to engage in processes that make clear to themselves the frames of reference that they are using to evaluate information, where awareness of perspectives is a key component to building knowledge and transformation of the self is an outcome. Fried suggests that this conflicts with traditional positivist epistemology that still pervades what is considered important knowledge and thus how that is learned.

In addition to pervading epistemologies, Denial (2019) claims that universities apply a transactional model of education, with learners in the role of customers, teachers in customer-pleasing service and administrators as managers. She claims this ‘drains the entire system of its humanity and leads to decisions at every level where the personhood of a student, teacher or administrator is diminished (2019: n.p.)’. This, as Zembylas (2017) points out, influences and limits teachers’ choices in terms of pedagogy. We must acknowledge that there is an increasing interest in new pedagogies in higher education demonstrated by the research and teacher development literature available (e.g., Aktaş, 2021; Ashton & Stone, 2018; Bovill, Jarvis & Smith, 2020; Martin, 2015), which describes how pedagogies enable students to develop various ways of understanding knowledge and learning. It may be that learners are not snowflakes, but that models of education and pedagogies are outdated or unavailable to teachers. Webster and Rivers (2019) argue that narratives of resilience are partly responsible for positioning young people as ‘easily triggered’ snowflakes (p.524) because these narratives position being offended by something as a moral weakness rather than active engagement with an issue. In these narratives, the onus for change is on students and not the institutions, as shortcomings belong to individual students and not to the university.

A pedagogy of kindness

It is important that this generation of learners are taught using approaches that align with the learner's needs and the wider social context of those needs. Difficult issues in learning involve emotional discomfort (Porto and Zembylas, 2020, p.359) and emotional transformation that 'breaks complicity with social injustice and human rights abuse' (p.360). Difficult issues could include those in which so-called snowflakes are involved, namely activism from a global perspective. Robinson (2021:642), looking at critical reflection as an emotional process related to ideas of self-compassion and being open to ambiguity, notes that students and educators have been resistant 'to engage in the process of critical reflection and unsettling of binaries and rigid patterns of thinking due to the discomfort and vulnerability involved'. This suggests that students do sometimes find it difficult to engage with ideas that do not reflect their current understanding or ways of seeing, but Robinson sees this as also true of educators, so the responsibility lies not only with the students, but also with those who teach them.

We believe an appropriate response to this is a pedagogy of kindness. This is a teaching philosophy that is guided by kindness, compassion and care (Denial, 2020; Gilmour, 2021; Gorny-Wegrzyn and Perry, 2021), requiring teachers to identify with student concerns, see things from their perspectives and have a good understanding of the challenges individual students face in learning (Gorny-Wegrzyn and Perry, 2021). Denial (2019) describes it succinctly as 'believing people and believing in people' (n.p.). As Denial (2019) states, 'kindness is something most of us aspire toward as people, but not something we necessarily think of as central to teaching'. However, kindness was identified as an essential foundation for good teaching and learning almost a hundred years ago (Willard, 1929), and the pedagogy of kindness builds upon these roots.

Implementing a pedagogy of kindness requires teachers to change their teaching approach from control to relationship-building (Stephens, 2021). Power structures where the teacher has power and the student has none, 'weakens social consciousness and undermines necessary social change' (Gorny-Wegrzyn and Perry, 2021 p. 221). Pedagogies that equalize power distribution and are less hierarchical enable learners to 'think independently and have a voice of their own' according to Gorny-Wegrzyn and Perry (2021, p. 221). The pedagogy of kindness empowers learners from diverse cultures and backgrounds and enables them to have an active role in their learning and become

more engaged with class activities and issues of social justice. This leads to students being more motivated in their studies and feeling that they have worth and are respected (Gorny-Wegrzyn and Perry, 2021, p. 221). Therefore, it is possible to have a greater focus on the intersectionality of learners and it is less likely that those with mental health issues, and those who come from diverse backgrounds, are dismissed through stereotypical thinking.

This is also echoed by Stephens (2021) who emphasises the importance of trust rather than assuming that learners are trying to get one over on the teacher, positioning them as antagonists. Although Stephens claims that she has always implemented a student-centred approach in her teaching, the outbreak of COVID made her realise that she would often revert to a default of suspicion instead of compassion when students were not living up to her expectations. By applying the pedagogy of kindness, Stephens (2019) aspires to see her students as ‘people first and students second’, thus ‘giving them a voice in the class, trusting them to make decisions about their learning, and empowering them through ownership in the course design’. Studies generally show the importance of the learner-teacher relationship for improved learning outcomes (Gorny-Wegrzyn and Perry, 2021). Stephens (2021) says that students are more willing to take risks and try something difficult because they trust the teacher and feel that their voice is heard and valued.

Educational training often advocates professional distance, discipline, and control in class management, while kindness is seldom mentioned as a quality of a good teacher (Gorny-Wegrzyn and Perry, 2021, p.226, Denial, 2019). Pedagogies of kindness are often ‘feminised’ and ‘devalued’ and believed to be lowering the standards by making allowances for students (Gorny-Wegrzyn and Perry, 2021, p.226). However, Denial (2019) argues that being kind is different from being nice and that a pedagogy of kindness empowers the students instead of coddling them. As Stephens (2021) put it, ‘compassion does not compromise rigour or expectations. Rather, it models how students can engage their future stakeholders’. Nevertheless, changing how one sees oneself as a teacher and how one sees knowledge is not simple and makes changing the way we teach an ongoing objective. Clack (2019) found that issues emerged in his attempts to overthrow traditional ways of approaching knowledge and teaching in a university, particularly his unquestioned assumptions about his role and how this coloured his attempts to enable a critical pedagogy as the framework for teaching and learning.

How can we implement a pedagogy of kindness?

It is clear that implementing a new pedagogy is not always straightforward as potential obstacles arise from long-held beliefs regarding teaching and learning that pervade not only what a teacher does in their individual classroom, but also course content, programme content and institutional structures. While a pedagogy of kindness includes critical objectives, it can achieve these through relatively small changes that are guided primarily by the attitude towards learners that in turn mediates learners' attitudes towards their role in learning.

Gilmour (2021) suggests that the importance of a pedagogy of kindness has become clearer during the COVID-19 pandemic as this posed threats to all learners and their participation in learning. She states that the wellbeing of learners is part of the teacher role, and while she also asks if this is just being a good teacher' (p.4), online teaching gave teachers a more explicit role in literally fostering connection (p.1) and nurturing a sense of agency and compassion (p.1). The accommodation Gilmour discusses for helping learners in digital settings, also concerns all learning contexts, as one of the characteristics of a pedagogy of kindness is an accommodation of all types of learning and thus a key facet of the pedagogy because this demonstrates 'something important about the ways in which we should be creating a more just world' (Denial, 2019: n.p.).

The pedagogy of kindness is, as previously shown, defined by building trust, believing students and believing in students. Stephens (2021) explains that simple interactions in the minutes before starting a synchronous digital lesson made a major difference in building trust between her and the students. This is supported by Gorny-Wegrzyn and Perry (2021, p.227), who claim that implementing a pedagogy of kindness does not have to be time-consuming or exhausting as 'kindness is most intensely experienced through seemingly tiny gestures rendered with sincerity'. This is important because most faculties in higher education find themselves swamped with time-consuming tasks of both an academic and administrative nature. Incorporating a pedagogy that adds to their workload may be rejected, if not for pedagogical, then at least for practical purposes. It is encouraging then to find that the pedagogy of kindness has 'simplified my teaching, not complicated it' (Denial, 2019).

Believing students means trusting they are telling the truth when they say that they need an extension on a deadline, need to miss a class or have not been able to submit an assessment due to technical problems (Denial, 2019). Teachers should foster approachability and understand

that learners are people with multiple responsibilities and complicated adult lives that sometimes need to push academic endeavours down the list of priorities. By acknowledging this and showing understanding and compassion, students will feel seen and valued, not just as a member of the class, but as human beings. The empowerment that lies within that feeling should not be underestimated.

Believing in students is trusting that they can contribute valuably if given the chance. This contribution is made not only in class, but throughout their entire learning process, in the co-construction of content, assignments, and assessments. Students' contributions to teaching strategy are valuable and beneficial as they increase creativity, identify with students, and meet individual and diverse needs (Gorny-Wegrzyn and Perry, 2021, p.225). In a pedagogy of kindness, the outcomes are not just individual but also related to social justice. The realisation of that as a key component of teaching and learning and including the students' wants and needs in a wider perspective motivates and empowers learners who are part of a generation that is already engaged with social issues on a global scale.

Conclusion

As teachers, we must be aware of who our learners are. However, our understanding of our learners should not be based on conceptualisations that position our learners as defective. Instead, we need to recognise our learners' positive engagement with the world around them and teach to support and enhance that engagement so that they emerge from higher education as individuals who can make a meaningful contribution. We advocate a pedagogy of kindness as one way of helping to achieve this while recognising that this requires changes in the way knowledge, learners and teachers are conceptualised by learners and teachers and the institutions in which they work and study.

This has implications for programme design, regulations regarding assessments, obligatory coursework, and attendance. Critical pedagogies, in which we include the pedagogy of kindness, call for a change in the traditional relationship between the learner and teacher although this also requires the relationship between learners, teachers and the institutions of higher education to change.

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