

How Can We Use Self-Determination Theory to Engage More Z Generation of Students During Onsite Classes for Learning Achievement?

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Abstract: *Losing their interest to the onsite classes, after COVID-19 online teaching period, the Z generation of students spent more time on their smartphones being only physically present there. The originality of this study is given by the mixed researched methods (participatory observation, sociological exploratory experiment and self-administrated questionnaire) used to collect the information and identify if receiving autonomy, competence and relatedness from the teachers, students become more engaged in courses activities and learning performance.*

Contrary to our initial supposition we were able to conclude that the Z generation of students are not developing `anxiety` feelings when they are separated from their smartphones during classes if they are fully assured the autonomy, competence and relatedness for taking this decision. But, during that period their main thoughts are related to anxiety or expectation that something is to happen and they risk not to see it on their smartphone. Here we can conclude that maybe they are not aware of their dependency and do not consider that exists.

In the whole image of the three-year cohort, the extremities, 1st year and 3rd year of study are more dependent on the smartphone than the 2nd year. Also, the same study years (1st and 3rd), are more motivated and agreed with the established rules and found intrinsic motivation; as long as autonomy, competence and relatedness are accomplished for them. Maybe because 1st year students wish to better integrate into university life and 3rd year students have internalised the rules and they converged with their intrinsic motivation.

Keywords: *Self-Determination Theory; Z Generation; social work students; intrinsic motivation; learning engagement.*

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Introduction

Our daily lives are permanently connected to the smartphone, social media and all the elements brought together by them. Each of us recognises, conscious or unconscious, assumed or not assumed that smartphones are part of our daily existence (Hall, 2017). I am sure each of us forgot or lost, at least once, their phone and, at that moment, they felt as if the most important part of them is missing and there is nothing else that can replace it (Conner & Reid, 2012). Or, we experienced anxiety when we were not in contact with the phone for a short period of time (Mettathamrong, 2021). And, maybe in those moments we realised how addicted (Panova & Carbonell, 2018) we become to the smartphone and we are at the phase when we are not able to see our life or world without it.

After COVID-19 period this dependency became even more intense and, we can sincerely state that, if smartphones and internet did not exist during that time, our connection with everyone else would have been lost or exist only to an insignificant level. Through the internet and smartphone, we managed to keep contact with the outside world and even to create new connections due to those existing conditions (Elhai et al., 2017).

All the advantages that were brought once with the internet also the teaching activity embraced them. In this matter, teaching activity during pandemic time, initially was challenging. First, because new directions and teaching methods needed to be adopted and learned (Yalçın Incik, 2022), both by teachers and students. Different studies were made to identify the proper means so that students engage more via online teaching (Chiu, 2022; Luo et al., 2021) and make sure that information reaches them properly. Second, even though at the beginning of online teaching all actors involved were reluctant (Chiu, 2021) at the end they kept working both online and onsite. In this sense, they kept using the internet for transmitting information and receiving different tasks accomplished by the students. And also, during onsite classes more online videos and games were introduced for current teaching activity (Vizcaya-Moreno & Pérez-Cañaveras, 2020) to send the information in a more attractive way for the students.

Now, that we are completely on the onsite teaching activities, for students and even for teachers' new challenges appeared during courses. More frequently occurs that after a few minutes from the start of the presentation the majority of students lose their focus or they use their smartphones and give no attention to the course that is presented (Hampton et al., 2020). Creative teachers included more and more different strategies so that the students' attention would not be lost during presentations.

But, we do not need to ignore another important factor and we need to mention that current cohort of students has its own generational particularities, such as they are presented in the scientific literature by different authors (Igel & Urquhart, 2012; Mladkova, 2016; Wan Pa et al., 2021). From their very beginning this generation has grown with the internet, mobile phones, social media and it is part of their existence.

In this instance many specialists studied the Self-Determination Theory (SDT) owned by Edward Deci and Richard Ryan in the 1980s and tried to emphasise the importance of the three factors that this one presents: autonomy, competence and relatedness of the persons involved, in our case students from Bachelor Degree. The particularities of Z generation combined with Self-Determination Theory helped specialists in the social science field to procure important results for the knowledge society.

Studies focusing motivation, engagement and learning techniques of Z generation revealed the fact that (Seemiller, 2017; Seemiller & Grace, 2017) their milestones for efficiency are highly tied to strong collaboration and real identification with the established purpose of the course. In this way the intrinsic motivation connected with the main purpose contributes to properly collaborating and not to have a defensive attitude towards the main established goal.

Also, many empirical evidence using Self-Determination Theory concluded that intrinsic motivation, autonomy of subjects (pupils, college students, students, employers etc.), mindfulness contribute to engagement and achievement of established goals and less reservation exists from their part (Gagné & Deci, 2005; Niemiec & Ryan, 2009; Ryan et al., 2021).

For this sociological study we used the Self-Determination Theory (SDT), focused on the three pillars:

1. autonomy – during our first meetings we involved students in the decision taken regarding the rules that we need to establish for our course/seminar for each semester. The information was fully presented as a common decision and if they did not agree with that we would not take it into consideration. If they did not give their consent, we would not use it at all.
2. competence – during courses and seminars we had different interactive methods for teaching and learning experiences with the full involvement of the students that were present. This way we engage them to feel as part of the activity, to feel competent and that their point of view matters for all of us. We used the rule `nobody is wrong, it's just a different opinion and we will all learn and leave home with the right information`.

3. relatedness – we clearly stated from the very beginning that we, as teachers, are also here to learn new things, information and adapt teaching methods to the characteristics of their generation and future ones. We are in continuous training and we want to become better after this sociological exploratory experiment. This information contributed to create a sense of community to the students group and created the foundation of connection between teachers and students. And also, contributed to turning off or to use the `airplane mode` for their smartphones during courses.

We also presented the expectation that we had from our sociological exploratory experiment. Previously obtained results and what we hope to gain after this following up experiment. And also engaged them to become part of the results, no matter the final direction that we reach at the end. Explaining this way, the rationale that exists behind the rules that we established. And, at the beginning of each meeting we reinforced those expectations to make sure that they recall them.

Also, we used to be role-models for the students. Our own smartphone was on `silence mode` during courses and we all respected the same rules as the entire group. All these elements contributed, more or less, to our sociological exploratory experiment. We had a 10 minute break when we were able to have our smartphones and use them freely. This way, all the premises being established we used different research methods so that the hypotheses and objective of the study be reached.

Research methodology

For this study we used a *mixed method of research* combining both types: *qualitative methods (participatory observation and sociological exploratory experiment) and quantitative methods (a self-administrated questionnaire)* on students.

Our study was implemented during one university year from October 2022 until the beginning of June 2023. We had a pilot experiment one year before that contributed to our established hypotheses and we wanted to test them now. The target group was formed by 177 students from all three levels at Bologna system (1st, 2nd and 3rd year) enrolled at Bachelor Degree in social work domain at University `Stefan cel Mare` of Suceava, Romania. At the very first meeting from each semester at courses and seminars we (the teacher and the students) agreed on some rules that all of us must respect during the classes for the entire semester.

Among the rules we `voted` on; it also included the one where students and teachers should not use their phone during 100 minutes, with a 10 minutes' break, when we are in classes`. That was presented as a

`sociological exploratory experiment` that will help us monitoring our intrinsic motivation, engagement and autonomy for not using the smartphone during courses and be actively involved to class; possible anxiety for separation from the smartphone, identify smartphone addiction (if it is the case) and adapt our current behaviour change in classes (especially to be more active and pay more attention to courses). We need to mention that the decision for adopting these rules was using a democratic `vote` for each participant at the meeting. All present participants were asked to include their own rules that govern our course during the semester.

During our study we also used *participatory observation* of the students. Each meeting we resumed the rules that we established and were governing our course or seminar. We also made sure that they were still agreeing with the rules. We observed their current behaviours, if they respect the established and agreed rules, if they were more active during classes (engaged), how they tried to break the rules and why did they break them. We used an observation guide created to easily note the observed behaviour of the students during classes.

At the end of the semester we asked the participants to answer a short *self-administrated questionnaire*. The questions were both opened and closed, with multiple answers and also with the possibility to include their own answer (if it was the case). The questions were focusing on emotions and thoughts that they had when the rules were established; also, on behaviour that they had during the courses connected to the assumed rules; elements of intrinsic motivation (if there was the case); and, new challenge for a resumption of the sociological exploratory experiment.

For our study we used a random sample of 177 respondents, from 1st = 74, 2nd = 42 and 3rd = 61 years, enrolled at Bachelor Degree in social work domain at University `Stefan cel Mare` of Suceava, Romania. For the quantitative analysis we used the open-source statistical soft JASP 0.17.2.1 version offered free by University of Amsterdam. And for the qualitative analysis we used the Nvivo 14 edition software.

The main objective of the study is to identify how we can use Self-Determination Theory to engage more students during onsite classes so information can be received properly. Are the three factors of SDT (autonomy, competence, relatedness) relevant to obtain intrinsic motivation and behavioural changes on students for a common established goal during learning achievements?

Hypotheses for this study are:

- (1) Students develop `anxiety` when they are separated from their smartphones during classes?

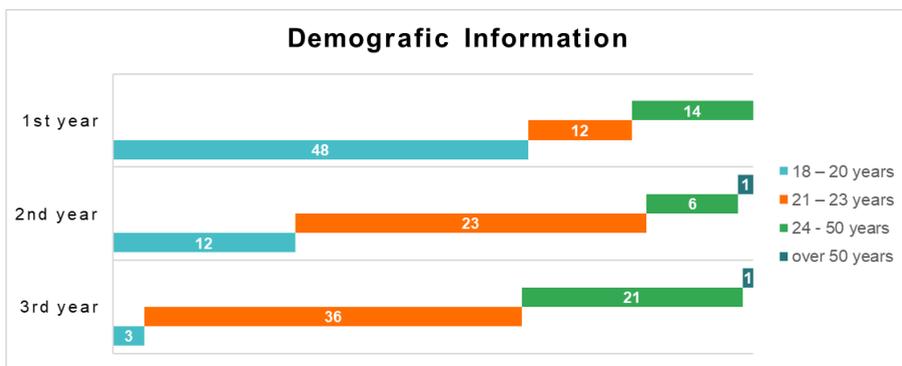
- (2) What `thoughts` rank first after the students are separated from their smartphones for a clearly defined period of time?
- (3) Students from which study year are more dependent on the smartphone?
- (4) Autonomy and competence of respondents during establishing the rules contributed to the intrinsic motivation for respecting them?

The originality of this study is given by the mixed researched methods used to collect the information and to identify if receiving autonomy, competence and relatedness from the teachers, students become more engaged in courses activities and learning performance.

Results

Regarding the socio-demographic information of our study we had a total of 177 respondents, as can be seen in Figure number 1 below. As a distribution on gender, we had more females (N=158) than male (N=19), this can be justified on the fact that Bachelor of Arts students from social work and future specialists are predominant females as can be seen in the relevant scientific literature (Lazăr, 2015).

Also, from the total number of respondents, 71 persons are in the age category of 21-23 years old. We should notice that we also have respondents `over 50` (N=2) that participated in our study and are enrolled in classes. This indicator confirms the fact that there is no age for re-qualification or even for double-qualification in the social work domain.



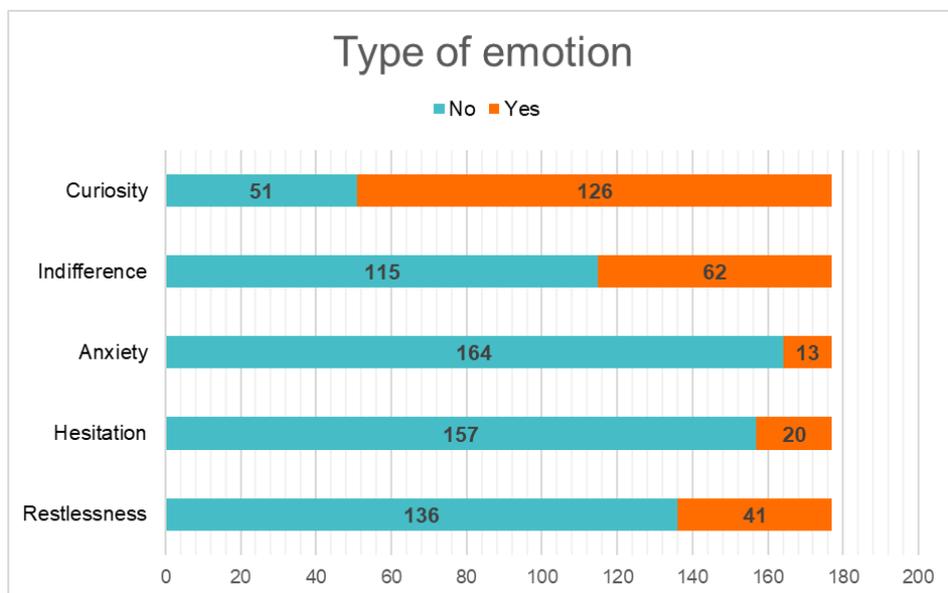
Source: Author's own conception

Figure no. 1. Socio-demographic information of respondents

As part of our study we challenged our students to recall the feeling that they had at the moment when we agreed to put aside the smartphone for the 100 minutes, with a 10 minutes' break, during the course or seminar

that was planned. For this question we used a simple closed question with 'Yes' or 'No' possibility of answer and we gave them four options, namely in this order: 'Restlessness', 'Hesitation', 'Anxiety', 'Indifference', 'Curiosity'. As we are able to see from the results, 'Curiosity' (N=126) and 'Indifference' (N=62) ranked first two positions for the 'Yes' answer, as can be seen in Figure 2 below.

Due to the fact that the autonomy, competence and relatedness pillars of SDT were taken into consideration during presentation of the rules, the respondents from our study felt secure and engaged; they did not feel 'anxiety', as we supposed they will do. Instead, they felt 'curiosity' and 'indifference'. Interesting emotions for the Z generation that grew once with smartphones and are permanently part of their daily life.



Source: Author's own conception

Figure no. 2. Types of emotions felt at that time by students

We used open-source statistical software JASP 0.17.2.1 version for descriptive statistics regarding emotions felt by the respondents when they were asked to put on 'silent mode' their smartphones. We extracted the mean for each emotion (e.g. for 'anxiety' was a 0,073 obtained mean). It was the lowest meaning of all emotions. Also, we extracted the standard deviation so that we are able to determine the 177 levels of dispersion of responses given by the respondents. All of these can be seen in Table 1 below.

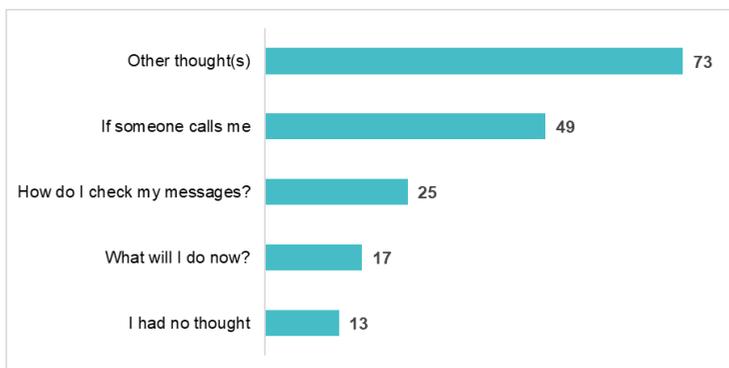
Table no. 1. Emotions felt by respondents

| | Restlessness | Hesitation | Anxiety | Indifference | Curiosity |
|----------------|---------------------|-------------------|----------------|---------------------|------------------|
| Valid | 177 | 177 | 177 | 177 | 177 |
| Missing | 0 | 0 | 0 | 0 | 0 |
| Mean | 0.232 | 0.113 | 0.073 | 0.350 | 0.712 |
| Std. Deviation | 0.423 | 0.317 | 0.262 | 0.478 | 0.454 |
| Minimum | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Maximum | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

Source: Author's own conception

For the second question of the questionnaire, the respondents had to say their thought(s) that passed through their mind at the time when the rule was established. They had to choose from three predefined options, such as: 'What will I do now?', 'How do I check my messages?' and 'If someone calls me'; and also a fourth option where they were free to say all their thoughts that occurred in their mind and are not included in the above ones.

From their answers, it can be seen that 'If someone calls me' (N=49) ranks first and helps us to conclude that, with or without their own conscience the students are permanently waiting for their smartphone to ring or receive a message and the lack of accessing it for a short period of time gives them an anxiety feeling and disturbance of properly focusing during classes. The graphical image of their options can be seen in Figure 3 below:



Source: Author's own conception

Figure no. 3. Thought (s) that the respondents had at the time

We are able to notice that there are 13 respondents that mentioned that they 'Had no thought'; this option of answer is different from the four predefined options mentioned above. This can be interpreted as compliance with the rules established and finding their own personal intrinsic motivation

not to consider otherwise. The fact that they were given autonomy for establishing the rules, competence and relatedness during the courses; also, the expectation from this sociological exploratory experiment were presented and the role-model of the teacher. All these elements being fulfilled for the student conducted their engagement to the research objective.

Regarding the option `Other thought(s)` we managed to extract the cumulative answers, given in Table 2 below. It can be seen that the `curiosity` and `challenging opportunity` were the first option of the respondents. Also, the `acceptance of the idea` without any complaints is an indicator of the conformity of the subjects and their intrinsic motivation.

Table no. 2. Types of thought(s)

| Type of thought (s) | Expressions used by respondents |
|-------------------------------|---|
| Acceptance of the idea | I enjoyed |
| | I'll handle it without worry |
| | I'm curious what's going on |
| | A very good idea |
| | Better like this! |
| | Fine with me |
| | I can resist |
| | I can stay without a phone |
| | I can do without him, for sure |
| | It will be something new |
| | An interesting method |
| Seen as a challenge | I like this idea, checking the phone is just a reflex. We have time to do this at home too. |
| | I was curious to see if I could meet this requirement |
| | I liked the idea because very often I am aware that the phone takes up too much of my time |
| | It will be something new |
| | It's a good idea to disconnect from online and live reality. |
| | It's a well-deserved break, now I'll be more careful |
| | It's ok, we can concentrate without being distracted. |
| | It's time to try something new. In the meantime, I managed to close my social media pages because I realised that they were of no use to me and even made me feel bad |
| Let's see this too.. | |

| Type of thought (s) | Expressions used by respondents |
|--------------------------|--|
| | Will I be more careful this way? |
| | Wow, this did not happened before |
| Find alternatives | I felt that the classes might be boring and that without a phone the boredom would be even greater |
| | I used my phone during class because the teaching methods did not captivated my attention |
| Indifference | Indifference, I wasn't thinking about the phone |
| | It didn't bother me at all |
| | I resist without looking at him |

Source: Author's own conception

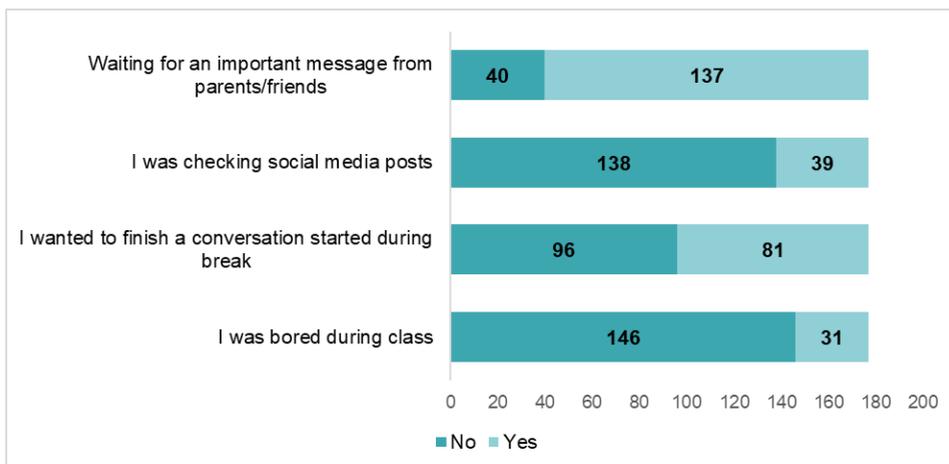
We were interested to see the thought(s) correlated with the age group of the respondents. From the 49 respondents who chose the answer `If someone calls me` there are 20 persons aged 21-23 years that selected this answer. This can contribute to the fact that this group age is more predisposed to dependency on the smartphone and on anxiety for the lack of the phone, as we can see in the Table 3 below.

Table no. 3. Distribution of answers on group age of respondents

| | 18 – 20 years | 21 – 23 years | 24 - 50 years | over 50 years | Total |
|-----------------------------|---------------|---------------|---------------|---------------|-------|
| If someone calls me | 15 | 20 | 14 | | 49 |
| How do I check my messages? | 14 | 11 | | | 25 |
| What will I do now? | 6 | 7 | 3 | 1 | 17 |
| I had no thought | 2 | 4 | 6 | 1 | 13 |

Source: Author's own conception

Even though the respondents agreed and they were fully autonomous when they established the rules some of them broke the rule during classes. The main reason mentioned by the respondents was that they were `Waiting for an important message from parents/friends` (N=137) and second was `I wanted to finish a conversation started during break` (N=81), as can be seen in Figure 4 below.

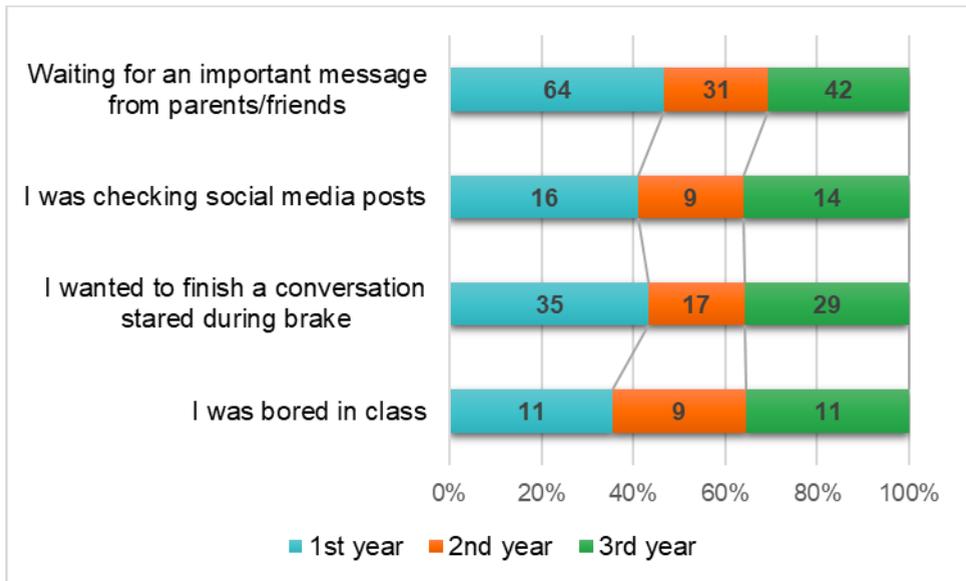


Source: Author's own conception
Figure no. 4. Types of reason for breaking the agreed rule

For a more comprehensive image, we can see the correlation between study year of the respondents and their options selected at this question. From the 137 respondents who chose the answer 'Waiting for an important message from parents/friends' there are 64 persons from 1st year of study that selected this answer. We can state that students from the 1st year of study are more dependent on the phone than they realise and it is harder for them to easily give up for a determined period of time, as we can see in the Figure 5 below.

Both extremities, 1st year and 3rd year of study are more dependent on the phone than the 2nd year. Maybe this is because at the beginning of a Bachelor Degree you need more information regarding the campus, keep contact with your new colleagues, and your family and the phone is the main means to extern world and contact with them. And the 3rd year of study is on the way to preparing for the next stage of their career or life and they need to also search information outside the campus and establish new connections and even inform the family and friends.

Meanwhile, the 2nd year of study is the calmer one and the equilibrate one from this point of view maybe because it is exactly the period when you need calm and quiet for study and current needs and emotions that they need to reflect upon.



Source: Author's own conception

Figure no. 5. Distribution of reason(s) for breaking the rule on study year

For the open answer 'No other reasons' the 177 respondents mentioned different types of motivations that they had for breaking the rule. After coding their answer, we managed to extract the main reasons: 'respected the rule', 'habit/reflex/checking the time', 'personal reasons', 'searching for information', 'to play', as seen in Table 4 below.

It is important to mention that 45 respondents selected 'No other reasons' option and other 45 persons did not mention anything to this section, leaving an empty space. This can mean that they respected to rule and they found the intrinsic motivation and connection to comply with it. Also, it means that the three factors of SDT (autonomy, competence, relatedness) are relevant to obtain intrinsic motivation and behavioural changes on students for a common established goal during learning achievements as we supposed in the beginning of our study.

Table no. 4. Types of reason(s)

| Other reasons | Answers stated by the respondents |
|---|--|
| Respected the rule established | I followed the rule and I didn't "lose anything"! |
| | I had no reason to use it |
| Habit / reflex / checking the time | Checking the time, the tendency to reach for the phone without wanting anything |
| | Honestly I can just open it and close it back |
| | I instinctively checked my phone |
| | I used to feel the need to use the phone |
| | Out of habit |
| | Probably the rebellious nature |
| | The habit of always being on the phone |
| | The habit of always having it |
| | The habit of checking the phone. |
| | Addiction |
| Personal reasons | Waiting for a call from family / boyfriend / courier / work etc. |
| | Emotions |
| | Fatigue |
| Searching for information | I googled for info |
| | I looked for information related to the topics covered in class to solve certain tasks or to provide faster answers to the questions asked |
| | I looked for information that I did not understand from what colleagues presented |
| | Searching for an unknown word |
| | Searching for answers to unknown questions/information |
| ***To play | |
| No other reasons | |
| No answers | |

Source: Author's own conception

For a clear image of the distribution of the answer `No other reasons` in the study year we can notice that the extremities, 1st and 3rd year, are more motivated and agreed with the established rule, found intrinsic motivation and became engaged in learning achievements. Maybe because respondents from the 1st year wish to better integrate into the university life

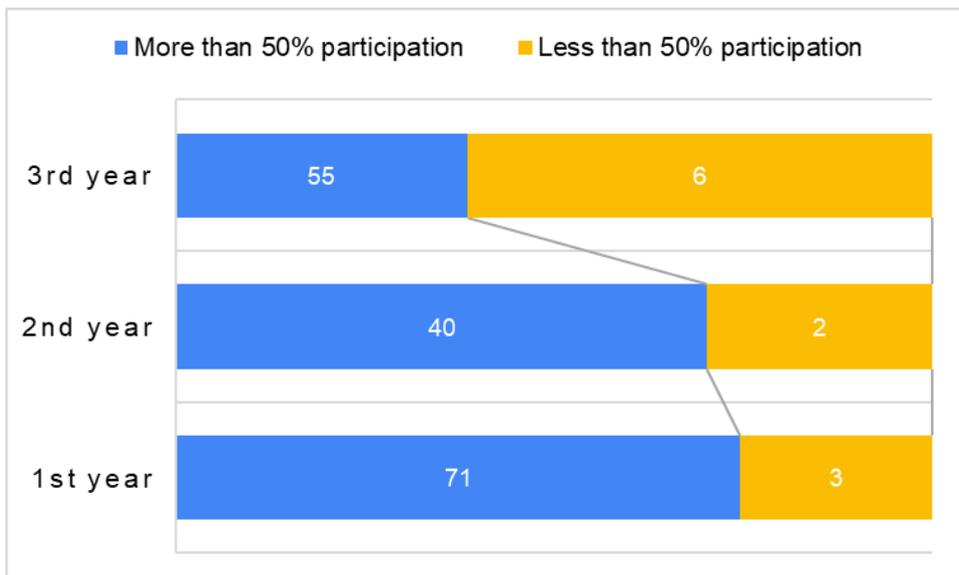
and have a higher intrinsic motivation. And the 3rd year has internalised the rules and they converged with their intrinsic motivation. The received answer and their distribution can be seen in Table 5 below.

Table no. 5. Distribution of answers on study year of respondents that chose 'No other reasons'

| | 1st year | 2nd year | 3rd year | Total |
|------------------|----------|----------|----------|-------|
| No other reasons | 20 | 9 | 16 | 45 |

Source: Author's own conception

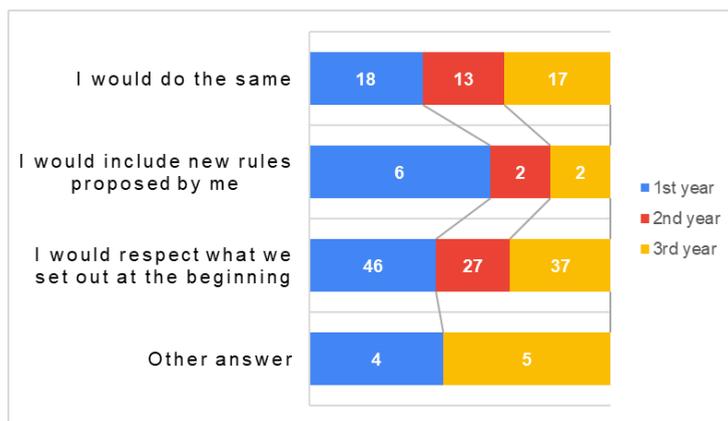
Regarding the reliability of the study over correlation between presence of students at courses and their given answers to the study, we are able to see Figure 6 below, that the presence at the courses is more than 50% (N=166) for each study year. This means that our study is relevant and its conclusions are important for the study we made. Also, can be part of future directions of research regarding the use of Self-Determination Theory to engage more students during onsite classes so information can be received properly.



Source: Author's own conception

Figure no. 6. Participation to students to classes

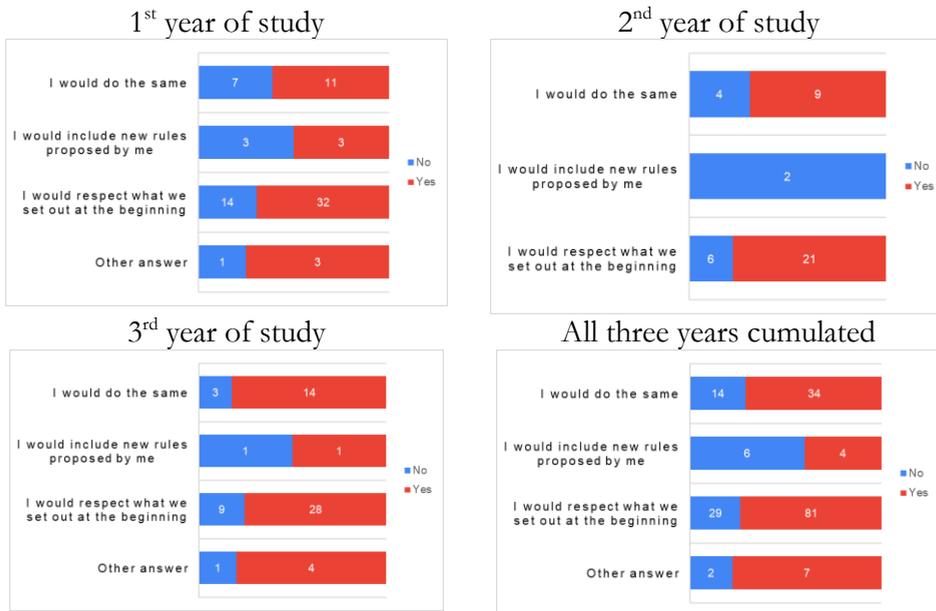
At the question related to 'Round two of the «sociological exploratory experiment», how would they react?', the given answers were very challenging because the majority of respondents mentioned that they 'would respect what we set out at the beginning' (N=110). As can be seen in Figure 7 below. Students from all three years chose this option and second was the 'I would do the same' (N=48). There is also the part of the students that 'would include new rules proposed by me' (N=10) relevant for our study. Probably, that part of the respondents did not feel fully autonomy and competence during this experiment.



Source: Author's own conception

Figure no. 7. Options for a duplication of the sociological exploratory experiment

For the section 'Other answer' it is very important to mention that only 1st and 3rd year of study gave an option here and among those there are: 'I would answer when it is important' (1st year student), 'I would try to respect it more, I would probably break the rule only in exceptional cases' (1st year student), 'It depends. If I get bored at seminars, I think I would do the same. In classes it was cool, but in seminars it was boring. That is, when my colleagues' project was presented' (3rd year student), 'I would like to pick up the phone' (3rd year student). As can be seen in Figure 8 below.



Source: Author's own conception

Figure no. 8. 'Other answers' given by respondents asked in case of a duplication of the sociological exploratory experiment

Due to all these findings we are able to reach some relevant conclusions that can help us continue our initial approach into the same direction or in a different one. Next we will present our key points.

Discussions and conclusions

When we started this sociological exploratory experiment we were on the edge when the Z generation of students were losing their interest in the onsite classes and they spent more time on their smartphones being only physically present there. We tried different teaching strategies and each of them was efficient only for a short period of time.

During our research we read many studies where Self-Determination Theory was used for online motivation, especially during COVID-19 and its implications for engagement of students. Also, we wanted to determine if after such a long period of online teaching, with all its effects (maybe some of them will appear longer that we aspect) the smartphone usage became addictive for students during classes or not.

Seeing all the advantages that SDT offers we established as an objective of our study to identify how we can use Self-Determination Theory to engage more students during onsite classes so information can be

received properly. Using the three factors relevant to SDT (autonomy, competence, relatedness) to obtain intrinsic motivation and behavioural changes on students for a common established goal during learning achievements.

After launching our sociological exploratory experiment, applying the questionnaire, along with the participatory observation during one university year (October 2022 until beginning of June 2023); also, collecting all the data and analysing it we are able to present our findings.

Regarding our hypotheses that we had at the beginning of our study. We were wondering if (1) *'Students develop «anxiety» when they are separated from their smartphones during classes?'*; Contrary to our initial supposition we were able to conclude that the Z generation of students are not developing 'anxiety' when they are separated from their smartphones during classes if they are fully assured the autonomy, competence and relatedness for taking this decision.

Namely, during our sociological exploratory experiment we engaged our students to decide the rules that we would adopt and respect during classes for the entire semester. During our participatory observation we were able to see that the opportunity given to them to choose and really matter their point of view and their opinion had a huge importance to them and felt part of the whole experiment and transformed it as intrinsic motivation. The first hypothesis of our study was tested through a binomial test seen in Table 6 below. According to the binomial test the 'anxiety' proportion is 0,073 as can be seen; the lowest one from all.

| Binomial Test | | | | | |
|----------------------|--------------|---------------|--------------|-------------------|----------|
| Variable | Level | Counts | Total | Proportion | p |
| Anxiety | 0 | 164 | 177 | 0.927 | < .001 |
| | 1 | 13 | 177 | 0.073 | < .001 |
| Restlessness | 0 | 136 | 177 | 0.768 | < .001 |
| | 1 | 41 | 177 | 0.232 | 0.604 |
| Hesitation | 0 | 157 | 177 | 0.887 | < .001 |
| | 1 | 20 | 177 | 0.113 | < .001 |
| Indifference | 0 | 115 | 177 | 0.650 | < .001 |
| | 1 | 62 | 177 | 0.350 | 0.003 |
| Curiosity | 0 | 51 | 177 | 0.288 | 0.259 |
| | 1 | 126 | 177 | 0.712 | < .001 |

Note. Proportions tested against value: 0.25.

Source: Author's own conception

permanently waiting for their smartphone to ring or receive a message and the lack of accessing it for a short period of time gives them an anxiety felling and disturbance of properly focusing during classes.

This answer is completely opposite from the emotional one, from the first question of the questionnaire. This puts us in a dilemma due to the fact that as emotion they do not feel `anxiety` when the separation from the smartphone occurs. But, when they are separated from their smartphones, their main thoughts are related to anxiety or expectation that something needs to happen. Here we can conclude that maybe they are not aware of their dependency (Hursen et al., 2023) and do not consider that it exists.

A relatively small number of respondents mentioned that they had no other thoughts (N=13) from the total number of 177 respondents. Maybe their number is small, but in our research context with observatory participation helped us to conclude that this is a compliance of the respondents with the rules established and finding their own personal intrinsic motivation not to consider otherwise. The fact that they were given autonomy for establishing the rules, competence and relatedness during the courses; also, the expectation from this sociological exploratory experiment were presented and the role-model of the teacher. All these elements being fulfilled for the student conducted their engagement to the research objective.

Also, we are able to conclude that the 64 respondents from 1st year of study selected the answer `Waiting for an important message from parents/friends`. We can state that students from the 1st year of study are more dependent on the smartphone than they realise and it is harder for them to easily give up for a determined period of time.

In the whole image of the three years of study, the extremities, 1st year and 3rd year of study are more dependent on the smartphone than the 2nd year. Among reasons can be the fact that in the 1st year you need more information regarding the campus, keep contact with your new colleagues, and your family. The smartphone is the main means to the external world and contact with them. Probably for the 3rd year of study, being on the way of preparing for the next stage of their career or life needs to search information outside the campus and establish new connections and even inform the family and friends. This way we managed to verify our third hypothesis of our study ` (3) *Students from which study year are more dependent on the smartphone?* `

Next, the fourth hypothesis was created in correlation with SDT and focused on (4) ` *Autonomy and competence of respondents during establishing the rules contributed to the intrinsic motivation for respecting them?* `. After all our findings we

were able to conclude that from our non-probabilistic sample of 177 respondents we can notice that the extremities, 1st and 3rd year, are more motivated and agreed with the established rules and found intrinsic motivation and became engaged in learning achievements. Maybe because respondents from the 1st year wish to better integrate into the university life and have a higher intrinsic motivation. And the 3rd year has internalised the rules and they converged with their intrinsic motivation.

Our study wanted to be reliable and we focused our attention on the answers provided by the respondents and their active presence during classes during the university year. From our results we concluded that the presence at the courses was more than 50% (N=166) for each study year. This means that our study is relevant and its conclusions are significant for the scientific community. And, can be a starting point for other studies regarding the use of Self-Determination Theory to engage more students during onsite classes so information can be received properly.

In the end of our study, we asked the respondents if they would agree with a second round of sociological exploratory experiment. The majority of the received answers were positive this means that further research on this subject can be developed.

Limitations of the research

For our current study we took into consideration some limitations, such as:

- *Sample size and representativeness*: we used a non-probabilistic sample of students. Based on the availability (self-selection) of the students that want to answer the questionnaire and also their participation in the sociological exploratory experiment.
- *The male respondents were over-represented in the study*
- *Measurement limitations*: the softs we used may have their own limitations or maybe they were not able to present the entire phenomena analysed by us.
- *Time and resource constraints*: for our study we had no resources, it was all pro-bono. The respondents did not receive anything in return for their involvement during the study. We had a limited period of time during the two semesters of the university year 2022-2023.
- *The lack of comparison groups*, for example social work students from other universities from Romania, or from different domains of study.

Disclaimer: All opinions expressed are those of the author and do not necessarily reflect the official policy or position of the employer, or of any government, agency, or organisation.

References

- Chiu, T. K. F. (2021). Digital support for student engagement in blended learning based on self-determination theory. *Computers in Human Behavior*, 124, 106909. <https://doi.org/10.1016/j.chb.2021.106909>
- Chiu, T. K. F. (2022). Applying the self-determination theory (SDT) to explain student engagement in online learning during the COVID-19 pandemic. *Journal of Research on Technology in Education*, 54(S1), S14-S30. <https://doi.org/10.1080/15391523.2021.1891998>
- Conner, T. S., & Reid, K. A. (2012). Effects of intensive mobile happiness reporting in daily life. *Social Psychological and Personality Science*, 3(3), 315–323. <https://doi.org/10.1177/1948550611419677>
- Elhai, J. D., Dvorak, R. D., Levine, J. C., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. *Journal of Affective Disorders*, 207, 251–259. <https://doi.org/10.1016/j.jad.2016.08.030>
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26(4), 331–362. <https://doi.org/10.1002/job.322>
- Hall, J. (2017). The experience of mobile entrapment in daily life. *Journal of Media Psychology*, 29(3). <https://doi.org/10.1027/1864-1105/a000228>
- Hampton, D., Welsh, D., & Wiggins, A. T. (2020). Learning Preferences and Engagement Level of Generation Z Nursing Students. *Nurse Educator*, 45(3), 160–164. <https://doi.org/10.1097/NNE.0000000000000710>
- Hursen, C., Karaokçu, H., Hatipoğlu, T. T., Karasaliş, Ş., Suhanberdiyeva, D., & Beyoğlu, D. (2023). Determination of Internet and Digital Game Addiction Level of Students According to the Opinions of Parents, Teachers and Students. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 14(1), 175–206. <https://doi.org/10.18662/brain/14.1/413>
- Igel, C., & Urquhart, V. (2012). Generation Z, Meet Cooperative Learning: Properly Implemented Cooperative Learning Strategies Can Increase Student Engagement and Achievement. *Middle School Journal*, 43(4), 16–21. <https://doi.org/10.1080/00940771.2012.11461816>
- Lazăr, F. (2015). *Profilul asistenților sociali din România* [Profile of social workers in Romania]. Publisher of West. https://main.components.ro/uploads/12c6a09675620f589055800ba6ceceee/2016/07/Profilul_asistentilor_sociali_din_Romania.pdf
- Luo, Y., Lin, J., & Yang, Y. (2021). Students' motivation and continued intention with online self-regulated learning: A self-determination theory perspective. *Zeitschrift Für Erziehungswissenschaft*, 24(6), 1379–1399. <https://doi.org/10.1007/s11618-021-01042-3>

- Mettathamrong, J. (2021). Factors that affect the behavior of adolescents in Thailand due to the use of mobile phones in their daily life. *Utopía y Praxis Latinoamericana: Revista Internacional de Filosofía Iberoamericana y Teoría Social*, 26(2), 212-226. <https://doi.org/10.5281/zenodo.4678884>
- Mladkova, L. (2016). Academic Environment Prom The Perspective Of Generation Z Students. In P. Slavickova (Ed.), *Knowledge For Market Use 2016: Our Interconnected And Divided World* (Issue International Scientific Conference on Knowledge for Market Use 2016-Our Interconnected and Divided World), (pp. 306-312). WE-Conference Proceedings Citation Index.
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom:Applying self-determination theory to educational practice. *Theory and Research in Education*, 7(2), 133-144. <https://doi.org/10.1177/1477878509104318>
- Panova, T., & Carbonell, X. (2018). Is smartphone addiction really an addiction? *Journal of Behavioral Addictions*, 7(2), 252-259. <https://doi.org/10.1556/2006.7.2018.49>
- Ryan, R. M., Donald, J. N., & Bradshaw, E. L. (2021). Mindfulness and Motivation: A Process View Using Self-Determination Theory. *Current Directions in Psychological Science*, 30(4), 300-306. <https://doi.org/10.1177/09637214211009511>
- Seemiller, C. (2017). Motivation, learning, and communication preferences of Generation Z students. *EHearsay: Electronic Journal of the Ohio Speech-Language Hearing Association*, 7(2).
- Seemiller, C., & Grace, M. (2017). Generation Z: Educating and Engaging the Next Generation of Students. *About Campus: Enriching the Student Learning Experience*, 22(3), 21-26. <https://doi.org/10.1002/abc.21293>
- Vizcaya-Moreno, M. F., & Pérez-Cañaveras, R. M. (2020). Social media used and teaching methods preferred by generation z students in the nursing clinical learning environment: A cross-sectional research study. *International Journal of Environmental Research and Public Health*, 17(21), 8267. <https://doi.org/10.3390/ijerph17218267>
- Wan Pa, W. A. M., Mahmud, M. S., & Zainal, M. S. (2021). Implications of social media addiction on academic performance among generation z student-athletes during COVID-19 Lockdown. *International Journal of Learning, Teaching and Educational Research*, 20(8), 194-209. <https://doi.org/10.26803/IJLTER.20.8.12>
- Yalçın Incik, E. (2022). Generation Z Students' Views on Technology in Education: What They Want What They Get. *Malaysian Online Journal of Educational Technology*, 10(2), 109-124. <https://doi.org/10.52380/mojet.2022.10.2.275>