Honours Programme
2022/2023

UNIVERSITY OF TWENTE.

Processes of Change

PRELIMINAR PUBLICATION

CONTENTS

PREAMBLE

In the realm of organizations, behold,
Where change unfolds, its tale untold,
A symphony of structures, individuals, and might,
In the dance of leadership, igniting the light.

In this sacred tome, where knowledge resides,
Honors students' brilliance, like stars, it guides,
They learned and explored, for years they strived,
To grasp the essence of change, deep and wide.

Organizational structures, their intricate thread,
Binding individuals, where dreams are bred,
From hierarchies to networks, they meticulously roam,
Unveiling the secrets of the structure's home.

Leadership, the compass in this transformative quest,
Guiding the flock, with vision manifest,
From servant hearts to charismatic grace,
Leaders shape destinies, in every space.

To all the contributors, we wish you luck,
As you embark on your paths, in change you truck,
May your endeavors be fruitful, your insights grand,
As you navigate the realm of transformation, hand in hand.

POC COHORT 22/23

Processes of Change cohort 2022/2023.
From left to right, top to bottom: First row: Nina Bode, Julia Schaa, Noah Verheijen, Dóra Csiszár, Artur Dylewski, Mayar Abdalla, Irina Kramers, Vithursika Vinasiththamby, María Cobo Muñoz. Second row: Emmett Meyer, Nathan Jongejan, Tsjalle van der Burg (track coordinator), Omar Mansour. Third row: Alexey Chechin

COURSE TEACHERS

Tsjalle

What a journey it has been! In February 2022, you decided to spend quite some evening hours and other leisure time to learn about change and improve yourself. To be honest, you were a somewhat silent group at the start, just like the group of the previous year. That may have been related to the lockdowns of 2020 and 2021, which have slowed down the development of so many young people everywhere. But after your modest start, you have changed rapidly. The teachers of the last course told me your group was full of energy while promoting many good ideas. More generally, all teachers have seen you improve seriously. You deserve many compliments for that.

Indeed, you have the right to be proud of your Academic Honours Diploma. But such a diploma also increases your responsibilities. Although the life of your generation is more difficult than that of previous ones, not only because of the lockdowns but also because of other developments, the generations after you may face even more serious problems unless their predecessors manage to change the world for the good. In this rapidly changing world, it makes me happy to know that each of you now has the capacity to improve the life of other people to a significant extent.

Tsjalle van der Burg

Julia

Dear students,

I hope you have noticed a change in yourself since the start of honours; and hopefully we have contributed to that piece of self-development! It was pleasure to accompany you on this personal expedition. It saddens me that I had to miss the second part of the journey as in that part you shine the most! I wish you all the best and hope you will keep on trying to change the world for the better!

Julia Wijnmaalen

Sophie

Dear (future) leaders, congrats on reaching this important milestone! You showed that staying on your own (personal development) track does pay off! Remember that leadership starts at personal leadership, thus at leading yourself, and that the social dynamics between you and other people is key in fulfilling effective leadership roles. Additionally, the function of leadership is to create more leaders, not more followers (Ralph Nader). I wish you all the best in your future lives, in its broadest sense. It was an honour to be part of your team. Hope we will meet again some day.

Big hug,

Sophie Bouland

Hayo

Dear students,

Congratulations for graduating as Honour students. By achieving this milestone, you have reached the end of a chapter, while simultaneously marking the beginning of another. I sincerely hope that the things youve learned and the skills youve acquired will enable and inspire you to achieve many great deeds in your professional and personal life. I wish you all the best!

Hayo Baarspul

Lara

Dear PoC Students,

I really enjoyed my time with you, during our Mondays evening. Your group was very diversified and yet united, full of energy and always willing to share ideas and suggestions. This is something I really appreciated, especially given the importance of group learning to gain a deeper knowledge and understanding of the phenomena around us.
Now, you reached the end of this learning experience, which will surely open numerous doors to exciting beginnings and opportunities that will make you thrive!

As Processes of Change Leaders, you will make choices and act as agents of transformation at individual, team, organisation, and even societal level! You will have impact on what is surrounding you.
Be sensitive, but firm in your decisions. Be responsible, but foster ground-breaking ideas. Be mindful, but dare.
Stephen Hawking one said: Remember to look up at the stars and not down at your feet. Be curious. And however difficult life may seem, there is always something you can do and succeed at. It matters that you don't just give up.
I hope you will treasure this and never forget to be true to yourself; be proud of your achievements and, most importantly, whats behind them, since those processes are perhaps not seen, but are certainly the most valuable part.
All the best with what is waiting ahead of you!

Lara Carminati

Pauline

When I think of the PoC honour students, I can't help but wear a smile on my face as you were my very first cohort and left me even more excited for the future years! I would like to give each and every one of you a big virtual high-five (or a real one, if we meet again) because you made the tutoring of your diverse final projects very enjoyable! Reflecting upon our time together, you have impressed me with your great dedication to the program and intellectual stimulation within the group. With these words, I would like to express my gratitude and best wishes. The future holds great promise, and I have no doubt that you will continue to achieve remarkable things. Remember to stay curious, embrace change with open arms, and never lose sight of the tremendous impact you can make as PoC honours graduates. 😊

Pauline Weritz

From all your teachers, WELL DONE to all of you!

PROJECT REPORTS

Revival of HEC

Alexey Chechin

Project supervisor: Dr. L. Carminati

Introduction

The management of the Honours Program is a complex structure consisting of multiple committees and stakeholders with their own roles that jointly ensure the existence, operation and development of the Honours Program at the University of Twente. The highest positions in the hierarchy of honours management are taken by the honours dean and a program director. On the more operational level, there is an executive Honours Office that ensures continuity of daily operations, and three committees that focus on the quality and development of the program on a broader level (Regulations of the Honours Programmes, 2020).

In particular, Honours Education Committee (HEC) "offers the Honours Dean and the Honours Office solicited and unsolicited advice about the educational substance of the tracks, and about the Educational Regulations, quality, progress and development of the Honours programmes of the University of Twente. In advising, the Honours Education Committee takes the findings of the Honours Educational Quality Committee into account." (Kotter, 2009) HEC is a committee that started in 2018 and had multiple attempts to shape itself into a well-functioning permanent organ. Nevertheless, now (Summer 2023) the committee is undergoing a depression resulting in a lack of motivation from members and an uderperformance.

Committees are an essential component of institutional governance. Committees are formed when institutional needs arise that cannot be addressed via existing structures (because they are considered inadequate for a particular set of circumstances); new governance structures must be developed (Quarless, 2017). In the case of the honours program, the Honour Office is highly focused on execution of the everyday operational tasks. Therefore, it does not always have the capacity to take a step back and assess the global perspective of development for the Honours program. Hence, there is a clear need for the advisory committee, which is easiest to achieve by reviving HEC.

At the same time, the program director has a strong wish for HEC to urgently become an organ that actively contributes to the development of Honours. (N.Adrichem-Rotteveel, personal communication, June 13, 2023) Indeed, now as we gradually approach the deadline for implementing UT Shaping 2030 strategy, it is vital to make sure that the Honours program keeps up with the current needs of the university, teachers and students and timely adjust itself for the coming societal trends. Therefore, reviving HEC in such a way that it could ensure continuous and necessary development of the honours program, is set to be the goal of the current graduation project.

Change goals

In the past academic year before the current intervention project, the HEC committee managed to meet only once, did not deliver any substantial advisory output and increased the unwillingness of other management bodies of the Honours Program to collaborate by failing to react to their requests on time. The described state of affairs is referred to as the "underperformance of the committee", which might be caused by a combination of internal and external factors such as the motivation of the members, lack of clarity of procedures, the inappropriate composition of the committee etc. Moreover, the full-fledged results of the intervention would require significant time to pass. Therefore, due to the limited time frame of the current assignment, the current project is focused on a thorough exploration of the problem and on laying down the foundation for its resolution instead of attempting execution of the plan itself leading to the tangible change of operations in the committee. Thus, the goal of the intervention is to identify the root cause problem of the ineffective operation of the Honours Education Committee followed by the creation of an environment that would foster change leading to resolution of this issue.

The assessment of the success of the current project can be looked at from different perspectives. Firstly, according to the definition of the set goals, it can be concluded that the intervention is successful in case of the root cause problem of the ineffectiveness of the committee is identified, being clear to all the HEC's members and the plan for tackling this issue is drafted. Secondly, the perceived effectiveness of the committee can be investigated before and after intervention via a questionnaire filled out by members of HEC.

Approach of change

In general, the are multiple methodologies of change that can be applied. In the scope of the current project, it is argued that the most relevant change model for organisational transformation is the 8 steps of Kotter's model (Enis, 2010), which is chosen to be the core tool for described intervention. As the name suggests, there are 8 main steps in the model represented in the diagram in Figure 1.

Successful transformation cases indicate that the change process goes through a series of stages, each lasting a considerable period of time and commitment (Kotter, 2009). Because of the extremely restricted time frame available for the intervention combined with the large scale of the change required potentially along the entire organisational structure of the Honours Program, it is decided to focus on the first 3 steps of Kotter's model for the purpose of the current graduation assignment. Therefore, it is aimed to mobilise resources and create a concrete plan needed for the change.

In the way of developing a vision for change, the root cause problem must be identified together with all the mobilised participants of the HEC and parties connected to it. The other outcome of the vision for change is the road map of possible actions. Therefore, the selected 3 steps of Kotter's model fully cover the goal of the intervention specified in Section .

Note that during the design phase of the current project, other change models were considered. The most basic one is the Lean methodology or "Kaizen" method which is meant to be "forcing manufacturers to optimize the manufacturing process, operations, and all the

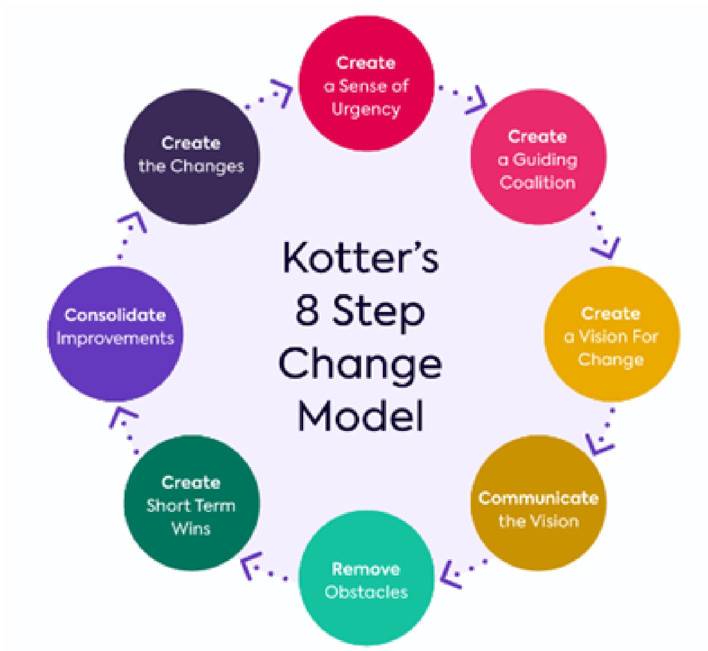


Figure 1: 8 steps Kotter's model (How to Successfully Implement Kotters 8 Step Change Model | Lucidity, n.d.)

possible nodes of supply chains that enable them to deliver high-quality products in a short period of time." (Karim, 2013) However, this method is often applied for the optimisation of existing structures with stable operational input. HEC is not at this stage yet at the moment and, therefore, it is decided not to adopt Lean methodology as a base for the current intervention.

Nevertheless, there are prominent examples of highly successful results of continuous application of the Lean methodology in the real world such as by Toyota.(Behrouzi, 2011) in case of the success of the reviving intervention, the committee is strongly advised to integrate the lean methodology in the annual plan to ensure continuous improvement of its operations and effectiveness. Note, however, that multiple researchers stated that "the lack of an effective implementation methodology, a clear understanding of lean performance and its measurement are significant reasons behind the failure of the lean practices." (Behrouzi, 2011) Hence, it is suggested to deeply dive into the specifics of lean methodology in the context of HEC before applying it in practice.

Execution of change

All the 3 selected steps of Kotter's model were approached through the workshop with all the current HEC members complemented by personal meetings with the Honours Program Director. The sense of urgency was created in 2 ways: during the workshop, members were asked to create an individual swot analysis of HEC's operations. It is assumed that consecutive exchange of ideas during the brainstorming leads to the shared realisation of the threats and opportunities and hence, what can be changed in the committee. Moreover, the structure of the workshop was intended to give its participants a personal touch and a sense of personal responsibility for the change. Additionally, the top-down sense of urgency was created by acquiring expectations and inspirational words from Honours Program Director and clearly communicating them to the team.

According to Kotter, a strong guiding coalition of change management should be based on three key values: level of trust, shared objective, and the right composition. (Enis,2010) The Guiding Coalition is hence also formed in 3 ways: firstly, the internal HEC team was bonded during the workshop by the mean of the energiser requiring teamwork skills. Secondly, one of the activities of the workshop was sharing the intrinsic value of the members with respect to their presence in HEC. The last mentioned exercise also involved a round of sharing which values of other members everyone related to, which resulted in a clear overview of the most common values in the committee (see Figure 2). Lastly, it is important to ensure that collision involves parties across the program Director was actively involved in the process, got updated about its stage and asked for input.

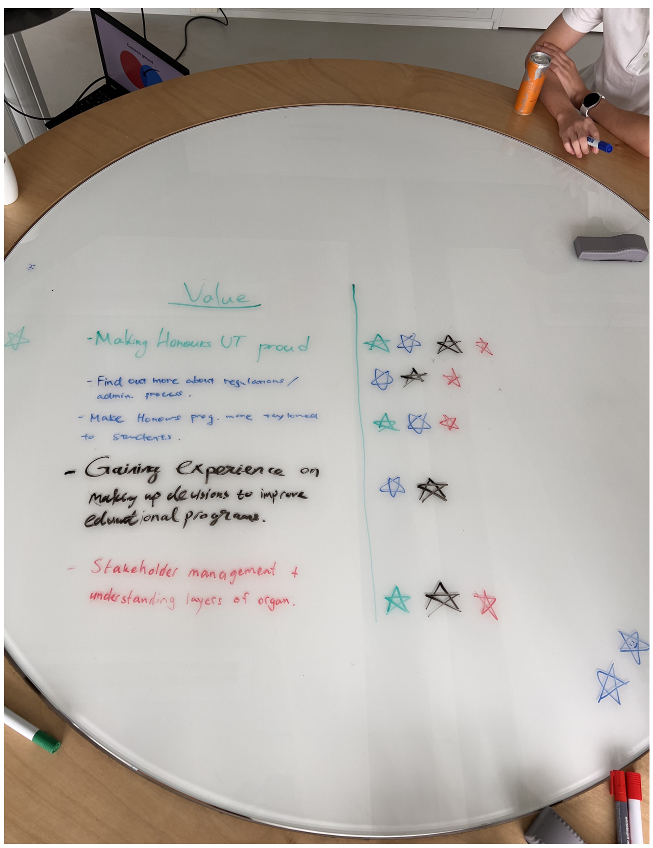


Figure 2: Values of HEC members

Finally, since the main substance of the change is the HEC itself, the "vision for change" was largely formed by the vision of the committee itself. Therefore, during the workshop firstly the differences between vision and mission was explained to all the members with the use of examples from the most prominent companies. Secondly, every member was asked to brainstorm both mission and vision of HEC from their perspective individually. Lastly, the individual findings were exchanged and the convergent versions were found. This way, the vision and mission of HEC became the ultimate goals that the transformation of the committee needs to yield and that every member can personally relate to.

The full overview of the structure of the discussed workshop is, therefore, as follows:

1. Ice breaker: Draw a bicycle in a team with only straight lines **(5 min)**
2. Common motivation: everyone shares their motivation to be on the HEC committee and puts it down concisely in the left column. In the next round, everyone puts a star of their own colour on the right columns in the row of the value they relate to and shortly explain why → most stars show the most common value **(10 min)**
3. Vision and mission of HEC: Look up definitions and create a mission of HEC. Based on the common values think if we want to complement it and formulate the vision of HEC. **(25 min)**
4. Coffee break (15 min)
5. Brainstorm: SWOT analysis of HEC. First by individually, then put all together in one scheme and discuss common points**(20 min)**
6. Brainstorm: Look at the weaknesses and the threats of the SWOT, and see if there is any unforeseen input. Otherwise, pick the working procedures (internal and external) as a topic and brainstorm solutions first individually, then a round of share and then draw an impact/feasibility chart **(20 min)**
7. Road map: Draw a roadmap with the bounded timeline to connect the brainstormed solutions **(20 min)**

Moreover, since the goal of the intervention is extremely ambitious and requires a polar change of behaviour of the members from passive to pro-active, the environmental constituent was intentionally integrated. Namely, instead of the closed and dark meeting room next to the Okham room usually used for HEC gatherings, one of the most collaborative spaces in the Design Lab (Play) was booked. The room has a lot of sunlight-enlightened space, two walls are full of whiteboards, a panoramic wall with a view of greenery and a round table with an integrated rotational whiteboard in the middle.

Results

As a result of the workshop, the values connected to the motivation of HEC members have been established (see Figure 2) and the vision and mission of HEC were formulated (see Section). Moreover, the root cause analysis has been performed with the initial plan of action to treat core issues made in collaboration with all the participants.

Furthermore, to measure the effectiveness of the intervention, the perceived effectiveness of the committee was collected from HEC members via questionnaire, where 2 questions were as follows: "How would you rate the effectiveness of HEC before May?" and "How would you rate the effectiveness of HEC now?" According to the results, before the intervention, the mean perceived effectiveness of HEC is 1.6 on a scale of 10, while after intervention it rose up to 7.3, which is a 356% improvement. The low perceived effectiveness of HEC is also supported by the remarks made by the participants of the questionnaire such as *"No activities were held prior to May, so I did not really feel that I was a member of HEC"* or *"After the leave of the two teachers and two other students, it was demotivating to be part of the committee."*

Another set of questions is intended to measure the perceived clarity of perspectives for improvements in the effectiveness of HEC. Surprisingly, there is a large spread in the level of how clear the potential for improvements in HEC among members is, which can be seen in Figure 3. It might be caused by the fact that there is a large difference in how much experience different members have in the committee. However, the spread might also be triggered by a lack of clarity in the question itself as it can be interpreted in two ways: how clear it is that there is room for improvement and how clear it is what exactly is possible as an improvement of HEC. Ideally after coming to a conclusion on possible unclarity of the questions, the participants of the questionnaire should be asked to reflect on this to verify the hypothesis. However, this is not possible to conduct before the deadline for submission of the current paper due to the high workload of members of HEC connected to the end of the academic year.

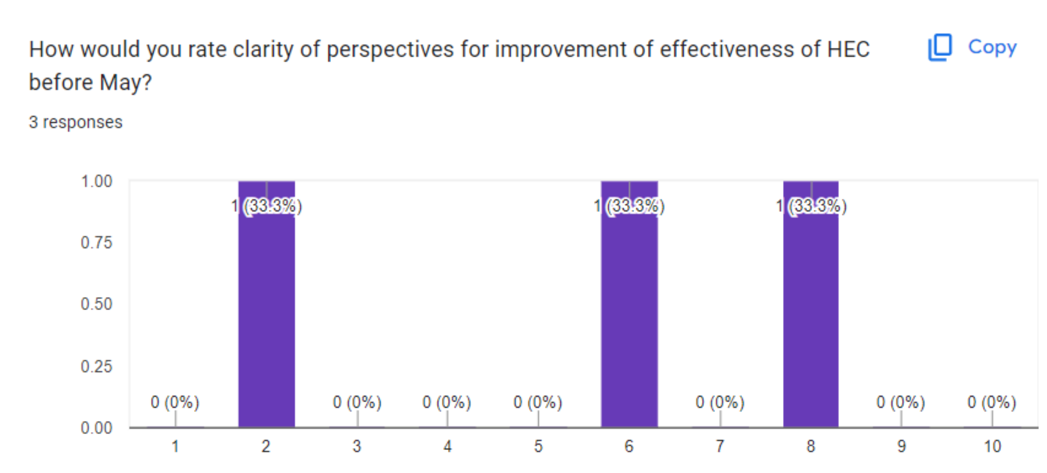


Figure 3: Perception of perceptiveness before intervention

Nevertheless, the results show that after the intervention the perceptiveness of HEC's effectiveness improvement is on average 62% higher, while the answers of the committee members are significantly more convergent, which can be seen in Figure 4

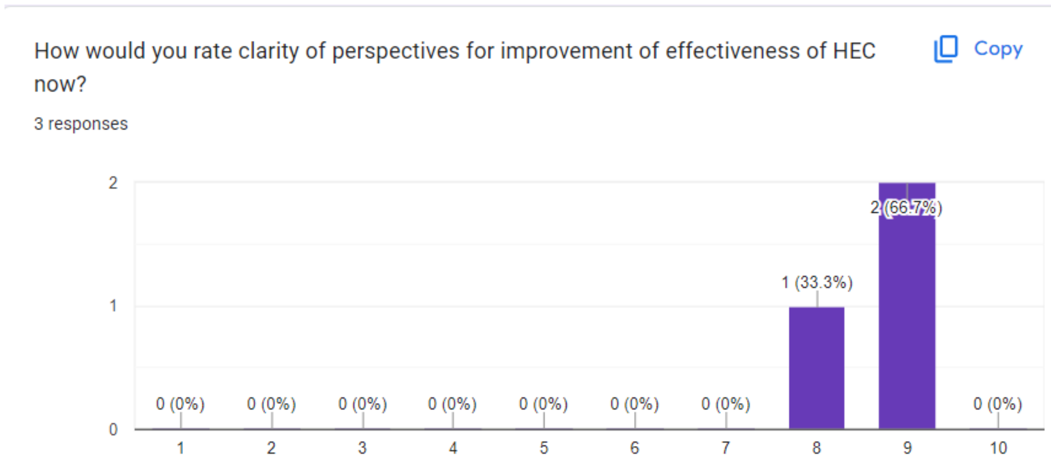


Figure 4: Perception of perceptiveness after intervention

Advice

The current intervention and the plan of action resulting from it are only the first steps on the way for HEC to "become great again". As a follow-up second step, it is strongly recommended to make use of the Kaizen methodology to ensure the continuous and full-fledged improvement of the committee. Practically it can be achieved by, for example, integrating into the annual plan of HEC the moment of critical review of the effectiveness of the new structure, its benefits and what should be adjusted.

Moreover, for the continuous transformation that would not fade away with time, it is essential to keep the "Guiding Coalition" strong. To achieve this, it is advised to make a significant amount of effort to integrate new coming members into the committee on a visionary level. Firstly, it is important to conduct a workshop that reveals the peculiarities of different members important for the group such as the preferred way of communication, thinking, sharing and receiving feedback etc. Secondly, the vision, mission, values and ideas behind the transformation of the committee should be not only made clear to the new members, but they must feel a part of it. It is, therefore, suggested to conduct an extensive onboarding workshop or a series of them upon joining of new members.

Learning experience

From my change project, first of all, I learned a lot about institutional structures, power hierarchy and political perspective on decision-making and communication. Secondly, I have gained experience in designing and partially implementing a change in a real-life case with a group of 4 people. Before this, I had only experience with change at the individual level or had a theoretical understanding of it.

There are a few things I would have done differently but mainly it has to do with handling the tricky group dynamics. Namely, the current HEC committee consists of 4 members, 2 of whom are introverts, while the chair and myself are extroverts. During the meeting, this often results in the first 2 people losing energy e.g. me being energetic and taking control, while I also get exhausted by their passive reaction behaviour. I feel like I need more knowledge and experience in group dynamics in this case for the effective implementation of change in a diverse group.

During the execution of the current project, I had 3 main supportive input sources: the informal talks with the chair of HEC, feedback from the honours supervisors and the class, and the coaching sessions. Talks with the chair were of great help in validating the details of the action plan I had against the reality of specifics of the HEC house rules and practices that were there before me. Moreover, presenting my plan in the honours class yielded a few interesting points such as valuable suggestions for theoretical reasoning behind the change as well as some critical points to think of such as how to make sure that I don't come across as an "arrogant superior", being a new member.

The coaching sessions together with the Our Future Leaders program given by Recess College have tremendously helped me with exploring my intrinsic motivation, coping mechanisms remaining from childhood that are not relevant anymore and many more. Unfortunately, I cannot share the details of these findings in the current report since they are too personal. Nevertheless, I am proud to share that I have achieved most of the goals that I set in the Personal Development Plan. Namely, I have exposed myself to the challenge of being a transformational leader in the organisation undergoing crisis. I have used my strengths such as natural extroversion and high ambitions to create a necessary energy for the transformation.

In terms of the type of leadership, I have explored that I tend to be a combination of the transformational leader according to its definition (Deinert, et al,2015) with a style of ensuring the equal participation of all the members of the group. I devote a lot of focus to creating an environment for individual and community growth, while I also feel the urge to make sure that decisions made are not going against anyone's values and are the product of the collective consensus. This project has shown me how important it is to care about others and run the extra mile to act as a real team. I have been through a very fast learning process in the past quartile and I will definitely dive more into mastering my leadership skills in the described direction in my future academic and professional career.

References

Behrouzi, F. and Wong, K.Y. (2011), Lean performance evaluation of manufacturing systems: a dynamic and innovative approach, Procedia Computer Science, Vol. 3, pp. 388-95.

Deinert, A., Homan, A. C., Boer, D., Voelpel, S. C., & Gutermann, D. (2015). Transformational leadership sub-dimensions and their link to leaders' personality and performance. The Leadership Quarterly, 26, 1095-1120.

Enis, A. (2010). Models and Tools of Change Management: Kotters 8 Steps Change Model. https://www.researchgate.net/publication/338345322_Models_and_Tools_of_Change_Management_Kotter%27s_8_Steps_Change_Model

Regulations Of The Honours Programmes. (2020). University of Twente.

How to Successfully Implement Kotters 8 Step Change Model | Lucidity. (z.d.). Lucidity. https://getlucidity.com/strategy-resources/guide-to-kotters-8-step-change-model/

Karim, A., & Arif-Uz-Zaman, K. (2013). A methodology for effective implementation of lean strategies and its performance evaluation in manufacturing organizations. Business Process Management Journal, 19(1), 169196. https://doi.org/10.1108/14637151311294912

Kotter, J. P. (2009). Leading change: why transformation efforts fail. IEEE Engineering Management Review, 37(3), 4248. https://doi.org/10.1109/emr.2009.5235501

Sequence Of Operations Manifesto. (2021). Honours Education Committee.


Surviving at UT

A Podcast to Facilitate Decision-Making Among University Applicants

Artur Dylewski, Emmett Meyer & Julia Schaa

Project supervisor: Dr. P. Weritz

Problem analysis

Graduating from school and starting an education at a university is a significant chapter in every student's life. In 2022, almost 350.000 students were enrolled at universities in the Netherlands, which underlines the relevance of this experience (Statista, 2023). Starting a new chapter of life is always exciting and challenging, but it can also come with many uncertainties and unanswered questions: What is the right way? How will life be as a student? Am I capable of going this way? Many prospective students are bothered by questions like these, which is commonly referred to as career indecision (Osipow, 1999).

Career indecision by itself is not necessarily a reason to worry, but it gets problematic when it results in maladaptive coping strategies that in turn lead to hasty decisions and dissatisfaction with one's study programme. At some point, freshmen may discover that their initial impression of the chosen study program does not match the reality they encounter and find themselves wasting valuable years. On an individual level, this may lead to lower overall satisfaction with life (Hagmeier et al., 2018). When these students decide to drop out at some point, the consequences may be even broader. The Dutch government subsidizes university places for EU citizens with more than 7000 € per year, which implies economic damage if a student decides to drop out (Miltenburg, 2019). Taken together, these consequences imply a need to intervene wherever career indecision seems to be a problem.

There is reason to assume that dissatisfaction with one's study program is an actual problem in the Netherlands. The most recent results of the Dutch National Student Survey (NSE) showed that, compared to 2022, significantly more students indicated that they would not choose their current study program again (Studiekeuze, 2023). At the University of Twente (UT), this dissatisfaction is mainly reflected in the drop-out rate after the first year, which is, on average, 26.6% for the five biggest study programmes (University of Twente, 2023). Furthermore, a survey with 48 participants of past and current UT students revealed that 17% felt nervous and 5.71% even felt scared after deciding they want to study. The participants rated their confidence after application with 70.78% on average, which underlines that career indecision plays a role.

According to the recommendations of Lipshits-Braziler and Gati (2015), it is important to offer various information channels to ensure that students experiencing career indecision do not develop avoidant coping strategies that result in decisions they regret later. The UT already uses modern technologies for this purpose, for example, online information about the study programmes on the website, promotion videos, and social media pages. However, these offers are mainly promotional in nature meaning that they fail to give an authentic impression of what student life looks like in reality. On the other hand, prospective students can visit the open days or be a student for a day on campus. These offers are more authentic in nature, but it may be difficult for many international students to participate in these activities since they require presence on campus. This assumption is supported by the fact that satisfaction with the information channels at UT was rated at 63% in our survey, which means that there is room for improvement. Also, international students are three times more likely to drop out compared to Dutch students (Darroch, 2022). In summary, career indecision and the associated consequences seem to be present at UT and imply a need to expand and improve the information channels.

Taking the abovementioned findings together, the problem can be summarised as follows: The limited availability of authentic information channels at UT makes it difficult for international applicants to make confident decisions about their academic future, which leads to avoidable consequences on individual and societal levels. Therefore, this project aims to expand the current information channels with more authentic information. More precisely, we aim to design an intervention that increases certainty and confidence measurably and lastingly.

Change approach

To support applicants with their choice and increase their confidence, we want to create an informative and authentic audio podcast, which might be published on the UT website or social media channels. This approach has two main advantages. Firstly, a systematic review by Kelly et al. (2022) highlighted that podcasts in educational contexts yield similar learning outcomes compared to more traditional education methods. For this project, this means that the information value of podcasts is generally adequate. Secondly, according to Savolainen (2012) a podcast aligns with several factors that facilitate information seeking. He mainly distinguishes between cognitive factors such as self-efficacy and perceived importance, and affective factors such as attitudes towards the information-seeking process. The convenience of a podcast helps to facilitate self-efficacy because listening to episodes can be easily integrated into everyday life, whereas watching videos or attending physical events are more time-consuming and have requirements that do not apply to podcasts. Furthermore, we assume that the target group's attitude towards podcasts is rather positive because it mostly consists of young people who are familiar with the concept of audio podcasts. 78% of respondents to our survey indicated that a podcast hosted by students would have helped them with making their decision. In line with this, the results of Kelly et al. (2022) showed that the students in their study appreciated this kind of medium because of its efficiency and convenience. Given that the podcast will be listened to in the context of deciding on a study programme and a future career, we also assume that the perceived importance is high enough. Taking this together, a podcast seems like a beneficial addition to the existing information channels at the UT.

Target group

Our primary target group contains all people who are planning to apply for a study programme at the University of Twente but do not yet feel confident about their choice. Uncertain individuals likely possess a low amount of perceived knowledge, which makes additional information channels especially appealing to them, thereby increasing their motivation to seek further information. Publishing the podcast on the website or on social media channels of the university allows to easily reach these people as the application process takes place on the website and social media channels are also promoted there.

However, since such a podcast would be publicly available, other audiences may also be interested in listening to it and should not be excluded. Applicants who have already made a confident decision about a study programme at the UT are targeted as well, to reaffirm their idea of the programme and avoid unwelcome surprises upon their official start. Nevertheless, the podcast is not limited to prospective students only. Enrolled students or any other people who feel the need or are interested to seek more information about student life or free-time activities may listen to this podcast too.

The episodes

After consulting the marketing department of the university, we decided to record multiple episodes, with each one being about one specific study programme. This setup facilitates information seeking because the applicants will immediately know which episode is relevant for them and their information need. Dividing the episodes per study programme additionally allows recording further episodes for other study programmes in future, independent of this project, the guests, and the hosts. Each episode will consist of a semi-structured interview between a host and two enrolled students. The host asks the students some broad questions about student life and the content of their study programme, which are then discussed and underlined with personal experiences. This means that the students' frame of reference is central to the episodes, which ensures authenticity and information value. Additionally, including two rather than one student allows to get multiple perspectives on certain topics, which ensures that a broad audience is addressed. The title of the podcast is "Surviving at UT".

The following three study programs were selected: Bachelor Psychology, Bachelor Business Information Technology, and Bachelor Creative Technology. These programs are unique and raise numerous questions. Psychology stands out as a social degree offered at a technical university, incorporating a significant amount of technology into its curriculum. Similarly, the Bachelor of Information Technology (BIT) is the only degree of its kind in the Netherlands, focusing on a specific subject matter. Another example is Creative Technology, which was the pioneering program of its kind in the country. This uniqueness often leads students to ask about the program's content and the practicality of pursuing such a degree.

The results of our survey were used as a starting point to structure the content of the episodes around four main topics. The first topic *Surviving on Your Own* is about moving out from home, possibly to another country, and all the technical effort that is attached to this experience. The main topics are housing in Enschede, finances, additional expenses, and the culture in the Netherlands. These topics are valuable for individuals planning to travel to the Netherlands, as they will help them adequately prepare and avoid any organizational or financial difficulties. For instance, gathering information about housing is particularly crucial due to the current housing crisis in the Netherlands. This is also supported by the responses to our survey since many students indicated finances, housing, and the Dutch culture as the biggest uncertainties during their application process.

The second topic *Surviving at the University of Twente* explains what life in Enschede and at the UT looks like. It covers the characteristics of the UT, such as buildings the campus atmosphere and different free time activities offered. Besides, it dives into leisure time in Enschede and possible associations. These topics will be addressed comprehensively, considering the abundance of facilities offered by the university and the numerous questions regarding their functioning and the location of lectures. Exploring this topic will also enable potential students to determine whether they are inclined towards the "american" campus life, as the university is distinct from the city itself. These topics are aligned with the input of our survey, based on the immense interest of the students for more information about leisure activities and the campus of UT.

The third topic *Surviving as a Student* explains the respective study programme. Hence, in this topic, it will be discussed what the study programme has to offer, what possibilities exist after the degree such as master's or job perspectives, the workload and work-life balance, and the amount of free time. Given that all the degrees included in the podcast are highly unique, certain aspects may not be entirely clear to everyone. For example, our survey showed that many psychology students were not sure how exactly technology is combined with psychology at the UT. Therefore, providing a tangible insight into the topics and projects undertaken during the study will greatly benefit incoming students in solidifying their certainty regarding their choice of degree.

The last topic *Surviving in Your Classes* explores the routine and everyday life of a student of the study programme of interest. Hence, this topic elucidates what exams look like, what kind of projects and assignments will be done, skills that are needed and possible electives during the study programme. This section delves into a typical day in the life of a student and explores the traits that might be appealing to students pursuing a specific field of study. By discussing these traits, it becomes easier to assess if an applicant is a good fit for the program. Our survey also showed that many students were unsure about exams and contents at the time of their application.

At the end of each podcast episode, the guests are invited to play a quick game called 'this or that game'. This game intends to summarize all the important points in a playful way, which increases the entertainment value and engagement of the guests and listeners (Rankstar, 2023). Within this game, the guests are questioned one at a time a 'this or that' question which they have to answer within a few seconds.

Materials and procedure

The guests for the podcast were recruited through our survey. Interested students could indicate their email addresses if they wished to participate. We chose the guests based on our preferences to ensure a genuine and comfortable atmosphere, as well as talkative and motivated guests.

Before the recording appointment, we provided the guests with an instruction form that contained information about the project and several reflective questions about their study programme. These questions were intended to stimulate elaborate responses and were formulated as neutrally as possible to make sure that they do not influence the guests' responses.

For the recording itself, we used professional equipment that was available at the university. This is important to increase the quality of the recording so that it will be high enough for publication.

When the guests arrived, we handed them a consent form and asked them to sign it, so that we got permission to publish their voices on the website. Upon request of the marketing department, we also created video recordings for use on TikTok and Instagram, but these recordings were not related to this project.

Evaluation and advice

To evaluate the effectiveness of our podcast, we contacted current UT applicants on WhatsApp, Facebook, and the Going App, and asked them to fill out a short survey after listening to the podcast episode about the study programme they applied for.

22 applicants completed the survey. A one-sided t-test indicated that the mean certainty increased from 6.33 to 7.25, which is statistically significant [$t(21) = -2.03$, $p = .032$]. The mean confidence increased from 6.75 to 7.5, which is statistically significant too [$t(21) = -1.71$, $p = .498$]. Furthermore, 17 participants indicated that the podcast provided them with additional information and the helpfulness was rated with 7.04 on average.

These results indicate that the podcast had an impact on the applicants and that it increased their certainty and confidence. Even if the podcast did not entirely sway someone's decision, it can be concluded that it helps in reducing the potential negative consequences of career indecision. Given that only a few of those who listened to the podcast also filled in the survey, we can conclude that we reached our change goals.

The positive results and the impact that the podcast had on the current applicants give reason to suggest that the podcast should indeed be published on the website or other platforms. Furthermore, the podcast could also be extended by recording more episodes or incorporating feedback to further improve the content of the episodes. However, the problem of career indecision and high drop-out rates remains present and cannot be solved by listening to a single podcast episode. This implies that all information channels should be constantly updated, improved, and extended to ensure that student satisfaction and educational quality remain satisfying.

References

Darroch, G. (2022, October 24). *One in six international students drops out in first year, study finds - DutchNews.nl.* DutchNews.nl. https://www.dutchnews.nl/2022/10/one-in-six-international-students-drops-out-in-first-year-study-finds/#:~:text=A%20quarter%20of%20international%20students,against%209%25%20of%20Dutch%20students.

Hagmaier, T., Abele, A. E. & Goebel, K. (2018). How do career satisfaction and life satisfaction associate? *Journal of Managerial Psychology*, *33*(2), 142160. https://doi.org/10.1108/jmp-09-2017-0326

Kelly, J., Perseghin, A., Dow, A., Trivedi, S. P., Rodman, A. & Berk, J. (2022). Learning Through Listening: A Scoping Review of Podcast Use in Medical Education. *Academic Medicine*, *97*(7), 10791085. https://doi.org/10.1097/acm.0000000000004565

Lipshits-Braziler, Y., Gati, I. & Tatar, M. (2015). Strategies for Coping with Career Indecision. *Journal of Career Assessment*, *24*(1), 4266. https://doi.org/10.1177/1069072714566795

Miltenburg, H. (2019, October 10). Overheidssubsidie voor studenten. *Studiekeuzekind.* https://weblog.wur.nl/studiekeuzekind/overheidssubsidie-voor-studenten/

Osipow, S. H. (1999). Assessing Career Indecision. *Journal of Vocational Behavior*, *55*(1), 147154. https://doi.org/10.1006/jvbe.1999.1704

Rankstar. (2023, May 3). Gamification In Podcasting - Smartico.ai. *Loyalty, Gamification & CRM Automation Platform.* https://smartico.ai/gamification-in-podcasting/#:~:text=What%20Is%20Gamification%20In%20Podcasting,create%20interactive%20experiences%20for%20listeners.

Savolainen, R. (2012). Elaborating the motivational attributes of information need and uncertainty. *Information Research*, *17*. https://dblp.uni-trier.de/db/journals/ires

/ires17.html#Savolainen12

Statista. (2023). *Netherlands: number of university students 2022*. Statista. https://www.statista.com/statistics/782018/number-of-university-students-in-the-netherlands/

Studiekeuze. (2023). Resultaten Nationale Studenten Enquete 2023. *Studiekeuze123*. https://www.studiekeuze123.nl/nse-studenten/resultaten-nse

University of Twente. (2023). Study in Numbers. *Universiteit Twente*. https://www.utwente.nl/en/education/bachelor/study-orientation/study-in-numbers/

Personality Tests 101

Raising Awareness In University Students on the Significance and Influence of Personality Tests

Dóra Csiszár

Project supervisor: Dr. L. Carminati

Introduction

'You find yourself drawn to a job that you are interested in. However, you discover that the hiring process includes a personality test that heavily influences decision-making. In this situation, would you consider being dishonest on the test to increase your chances of getting the job? Would you choose to conceal who you are?'

During the change project, the aforementioned quote was shared by a participant to capture the spirit of the discussion that is going to be addressed in this change project report. According to an article focusing on Fortune 500 companies, 80% of these companies incorporate personality tests into their hiring processes (Leikvoll, 2022).

Based on the book of Cameron & Green (2020) 'The use of MBTI™, or any other personality-profiling instrument, can have specific benefits when teams are experiencing or managing change. It can identify where individuals and the team itself might have strengths to be capitalized on, and where it might have weaknesses that need to be supported.' Therefore the book shows how the use of personality tests within group projects and groups works and how personality tests can have negative and positive effects.

Having a better understanding of their personality traits in advance could prove beneficial for students in their future careers and their student lives. Other than the future workplaces mentioned in the article of Leikvoll (2022) the Univerity of Twente focuses on individuals and teamwork within its education. It encourages students to experience multiple sides of teamwork and to develop themselves in this area. Specifically, the university arranges its end-of-module projects as a team effort. But do students know about the uses and applications of personality tests?

The goal of the PoC Honours Programme final project was not to answer this question, but the objective was to raise awareness about the utilization and effects of personality tests in a job environment and to further broaden the understanding of how these tests can impact teamwork and individuals.

Choosing the topic and developing the message

The goal of the project is to raise awareness about the usage of personality tests and their effects on team dynamics and teamwork in different settings. Therefore, the key message is to encourage individuals to approach these tests with thoughtful consideration, rather than mindlessly filling them out. It is highly important for them to recognise both the positive and negative sides of personality tests, as well as the potential impact and influence they can have on individuals and how they are perceived by others. By emphasizing this message, the goal of this intervention is to promote a better understanding of personality tests among my target audience. This brings us to

Determining and grabbing the audience, and stakeholder management

The primary target audience for this project was a group of students of the University of Twente. This audience was selected as many students may have general knowledge about personality tests but they might not be fully aware of their significance in various contexts. By directing this project towards university students, the ultimate aim was to broaden

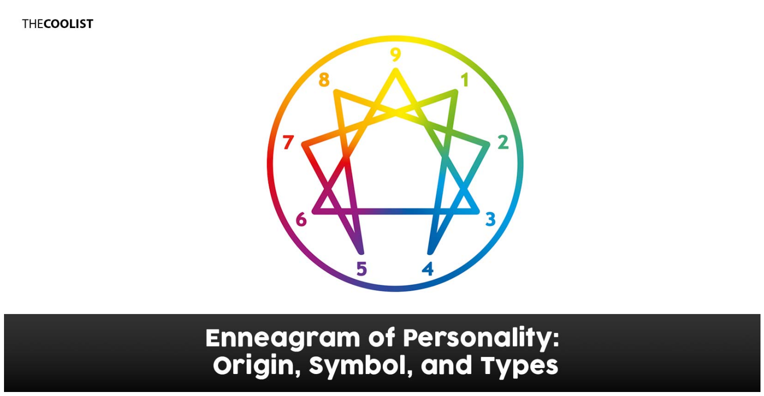
their already existing knowledge and challenge their learning, ideally providing them with valuable insights into the usage of personality tests.
To select the audience, the reaching of these students was arranged through Whats App, and further communication with them was conducted through email. The promotion of the event will be elaborated under the promotion point.

Learning the facts

It was chosen to focus, elaborate, and later on reflect upon five personality assessment tests with the students present, which are the Enneagram (Riso & Hudson, 2000), DiSC (Owen et al., 1970), HEXACO (Lee & Ashton, 1970), MBTI (Furnham, 1970), and BuzzFeed tests. Therefore at the beginning of the event, it was important to address the possible knowledge gaps surrounding these various personality assessment tests.
Additionally, it was important to be familiar with the potential negative and positive influences of personality tests to later on be able to showcase them throughout the presentation and to provide a justified and clear perspective on the subject matter (Cameron & Green, 2020).

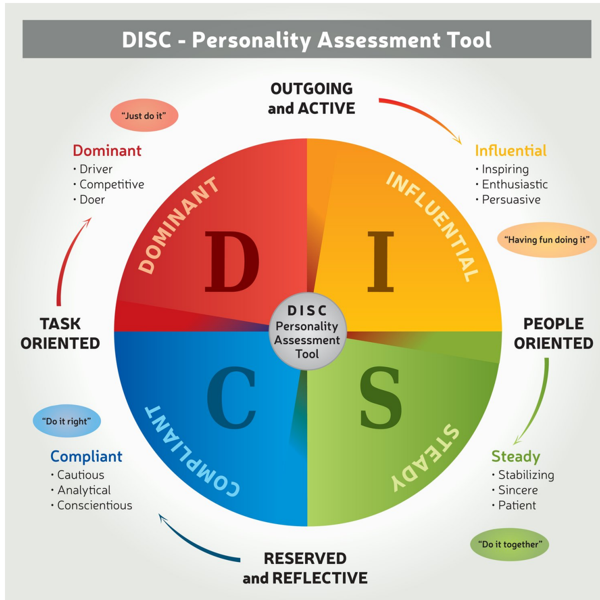
Enneagram

"The Enneagram is a personality framework of nine fundamental personality archetypes and their interrelationships." (Kam, 1970)



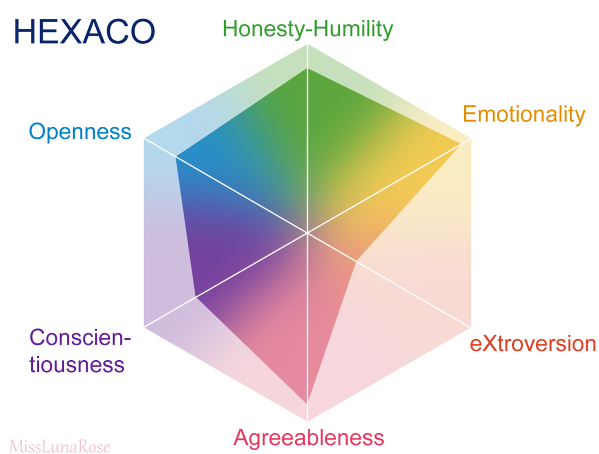
DiSC

"The DISC instrument assesses four dimensions of personality, labelled "traits" in the original DISC model (Marston 1928) and later termed "styles," "types," or "states" (Price 2015). Dominance refers to confidence and an emphasis on accomplishing results. Influence describes the process of persuasion and building relationships with others. Steadiness emphasizes cooperation, sincerity, and dependability. Conscientiousness focuses on quality and accuracy as related to expertise and competency" (Owen et al., 1970).



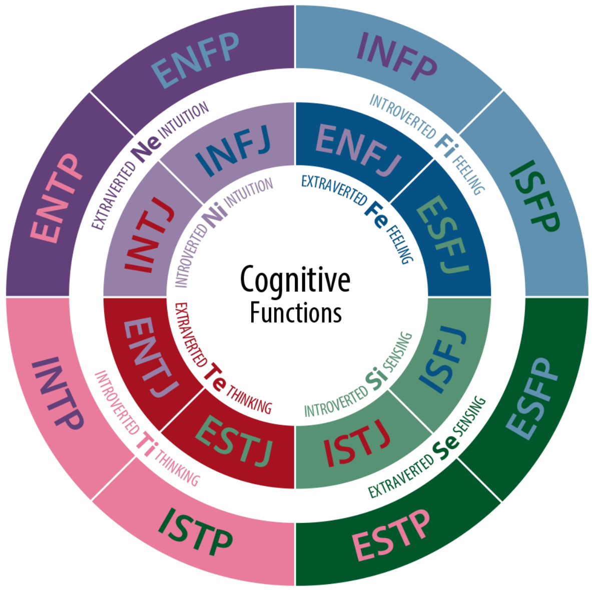
HEXACO

A model of personality structure positing that human personality traits can best be summarized by six broad, independent dimensions called honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience (Lee & Ashton, 1970).



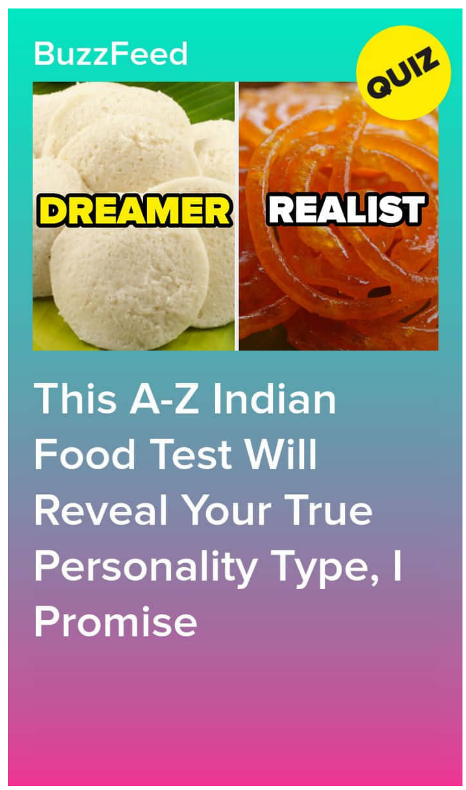
Myers-Briggs Type Indicator (MBTI)

The Myers-Briggs indicator is a Jungian-based inventory that uses a paper-and-pencil self-report format. It is composed of 94 forced-choice items that yield scores on each of the eight factors as well as the famous four dimensions: IntroversionExtraversion, SensationIntuition, ThinkingFeeling, and JudgingPerceiving (Furnham, 1970).



BuzzFeed

In comparison to the more comprehensive personality assessment tests mentioned earlier, BuzzFeed personality assessment tests (Quinn, 2017, Page 4) offer a different approach. These tests are primarily intended for entertainment purposes and can be viewed as parodies or satires of traditional personality tests.
BuzzFeed's personality assessment tests tend to focus on light-hearted and relatable topics, such as favourite holiday destinations, preferred food, or pop culture preferences. Users are presented with a series of questions, and their responses contribute to generating a funny description of their 'personality'.
It is important to keep in mind that BuzzFeed personality assessment tests should not be regarded as reliable assessments of personality.



Event arrangements

Pre-event arrangements

The event was scheduled to take place during the lunch break, from 12:45 to 13:30, on June 16th, 2023. In terms of the location, a room equipped with a projector was selected in Technohal and reserved through the booking office.
The channels used for reaching the targeted audience for the event were WhatsApp and email, as before the event, participants were informed about the location through email. Within the signup form, the participants were asked for a contact email, name, and privacy agreement.

Reflection on Promotion

The original promotion of the event was planned and sent out on the 30 of May, 2 weeks in advance of the event into multiple whats app channels which included the targeted audience. After the sending and reminding of the promotion, during the second week, there was only 1 signed-up student. As this number of attendees would have been too low, it was necessary to contact students individually. Form individual contacting the reasoning for multiple students for not signing up lied in the fact that the event was planned during exam week and in a generally busy period. In the end, a total of six people signed up for the event. On the day of the event, five participants attended, demonstrating a positive turnout despite the promotional setbacks. In the future, it will be important to note the general scheduling of students regarding exams and possible holidays.

The event

The following part elaborates upon the differing elements and decisions made for the programme.

Timeline of the event

Event	**Duration**	**Starting time**
Members join the room	15 mins	12:30-12:45
Starting the presentation +Forms 1	7 mins	12:45-12:52
Before video talks	7 mins	12:52-12:59
Video	5 mins	12:59-13:04
After video workshop	15 mins	13:04-13:19
Forms 2	7 mins	13:19-13:26
Ending	4 mins	13:26-13:30

Forms 1

The questions of the first survey gather information and insights, covering the participants' background knowledge on teamwork and personality, their previous experiences with personality tests, the scope of their team-based work, their perceptions of the value and importance of personality tests, their role within a team, and their incentives for attending the workshop.

Before the video

Before presenting the video, the session began with the origin and the goal setting of the project through insights into personal experiences of working in teams and using personality tests.
Then for some ice-breaking, a small introduction round amongst the participants and their experiences with the tests was held.
To provide a framework for understanding different personality tests, the 5 mentioned personality tests were elaborated on.
Afterwards, a TED Talk was presented, which further delved into the topic of personality tests and their impact.

Video

To complement the topics of the workshop, a TED talk called "Do personality tests work?" (`https://www.ted.com/talks/merve_emre_how_do_personality_tests_work`) by Merve Emre was chosen. This five-minute video delves into the specifics of the Myers-Briggs Type Indicator (MBTI) test and its effect on individuals and the societies thinking. Emre explores the idea that personality can evolve and change over three weeks, raising stirring questions about the consistency of our answers and the reality of assessing one's entire personality through a limited set of questions. Throughout, the video emphasises the need to approach all personality tests with a 'grain of salt' encouraging viewers to maintain a critical perspective when interpreting the results of any personality assessment.
Ultimately the TED Talk served as a valuable resource to enhance participants' understanding and spark meaningful discussions afterwards on the subject.

After the video

After presenting the video, participants engaged in an interactive discussion. They were paired up and given five minutes to share their ideas on the positive and negative effects of using personality tests in teamwork. Following this, we had an open discussion where teams shared their answers and explained why they found them influential. The focus was on identifying the main focuses of the teams and discussing how to build on them as a team and as an individual.

Forms 2

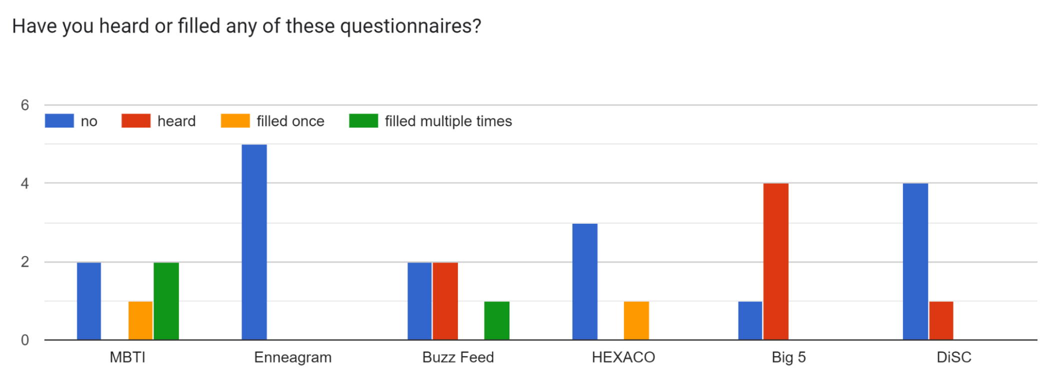
The questions of the second form shown in Appendix 7 aim to assess the effectiveness of the workshop (the appendices are not included in this version of the document. Please contact the author for more information). It questions the participants' perspectives regarding the workshop's impact on their understanding and future application regarding personality tests.

Post-event

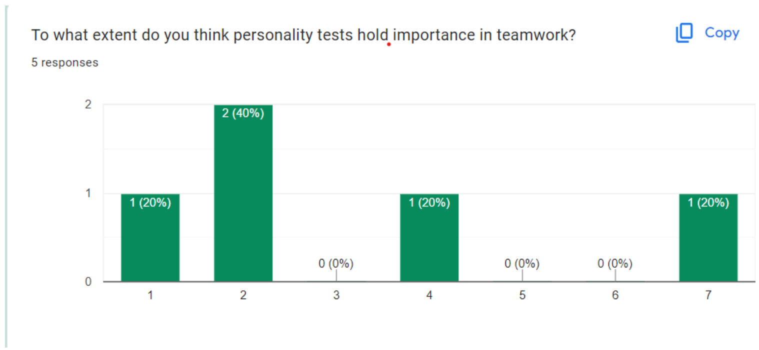
In the following segment, the results from the first and the second forms will be presented and afterwards discussed within the discussion segment.

The Results

In the event, all 5 participants were from differing fields of study including International Business Administration, ATLAS honours studies, Electrical Engineering, Information Technology and Creative Technology students.
The result of the first forms showed that 4 out of 5 participants have had a lecture about personality tests or teamwork within their studies. As a quirk of the university, all of the students have had to work in project groups throughout their studies.
Regarding the knowledge about personality tests, as can be seen within the picture below, most of the students had differing experiences so far in their lives. Students were most familiar with the 16 personality tests (MBTI) and the least familiar with the Enneagram typology.

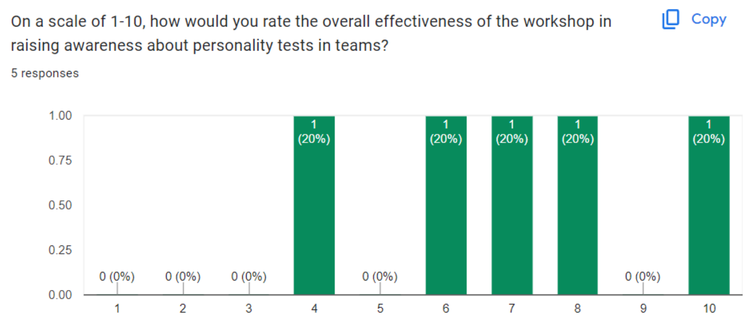


As a result of "To what extent do you think personality tests hold importance in teamwork?" the results were the following including votes for it holds the highest of importance and it doesn't hold importance:



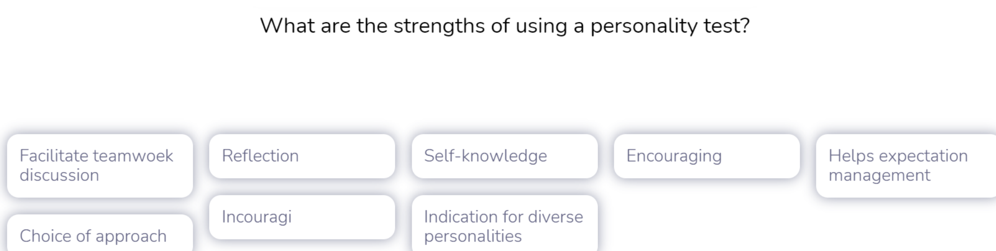
For the wanted learnings the students hoped for an expansion of knowledge on the application and usefulness of the personality tests.

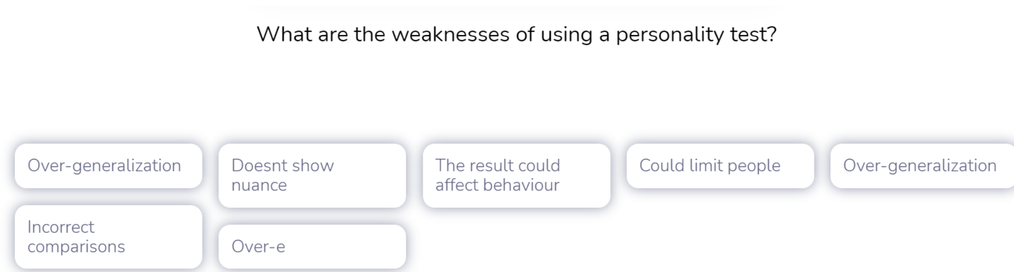
The results of the second form showed that within the question "On a scale of 1-10, how would you rate the overall effectiveness of the workshop in raising awareness about personality tests in teams?". The students viewed the workshop as generally effective.

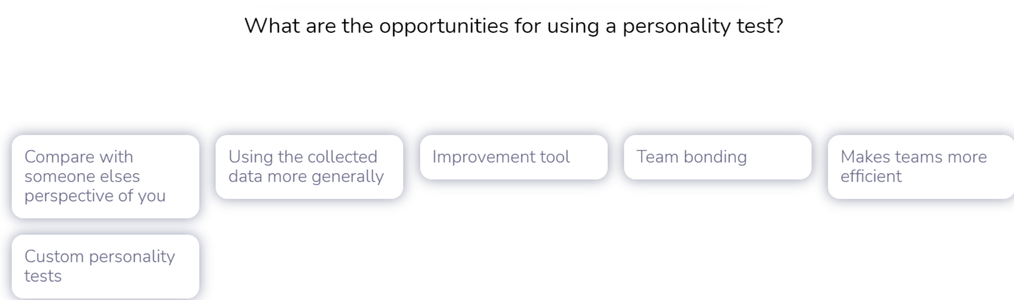


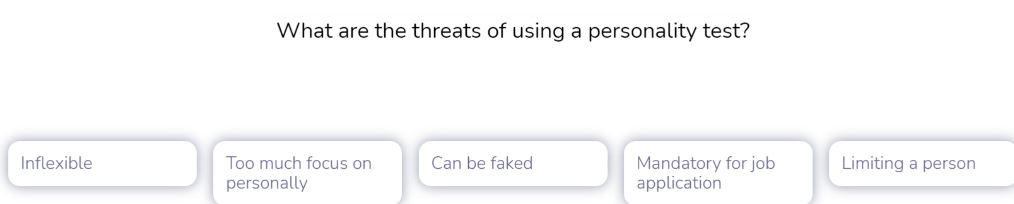
Discussion

The first questionnaire revealed that the students had prior experience with teamwork and personality tests, although many of them were uncertain about the tests' usefulness. The ice-breaker the video and the exercises overall encouraged collaboration among the participants. After the videos within the analysis, they looked at diverse perspectives and explored strategies to seek the benefits and challenges of using personality tests in teamwork. Through the workshop the participants were encouraged to think about the effects of the personality tests on themselves as an individual, and on them as team members. The results of this process showed in the level of discussion and the provided answers by the teams. Within the discussion, all teams placed major importance on the reflection that the personality tests are able to provide. They discussed that although the results of a test might not be of quality, the understanding of an individual might broaden regarding themselves and can give a tool to understand the motives and behaviours of their coworkers.









Additionally, within the second questionnaire, the students' responses indicated that the topic of the workshop was not widely discussed from this perspective before within their studies and that they took away the most from the interactive part of the workshop. The event overall raised their awareness contributing to the unawareness mentioned in the first form. Although the sample of students was relatively small, the participants noted that the workshop was eye-opening regarding 'the use for job applications and limitations, and as an example the 'potential benefits and threats of tests', and that it raised their overall understanding. These provided results showed the usefulness of the workshop and the project in the scope of the project.

What specific concepts or insights did you find most valuable or eye-opening during the workshop?

5 responses

The use for job applications and the limitations.

the general acknowledgement of the lack of comparative and methodological value of personality tests

Potential threats and benefits of tests

The possible opportunities and threats of these tests. How they are being used, and what I would personally like to get out of them.

The realzization is that a personality test can decide an outcome of a job

Personal reflection

Honours have given me personal development, opportunities, and a community I can strive in.

When I came to the Netherlands from Hungary, I was afraid of not being in an environment that facilitates and encourages creative thinking, discussion and a multidisciplinary environment. But when I arrived my do-group parents told me that there is a place full of people who value these things, and I will have a possibility to join it as well. That is how I got to know of the existence of Honours.

I applied to Honours. After applying, I was accepted and joined my track for the first module. At first, it was weird, as it was the first time I came across the approach of teaching where the teacher encouraged students to simply think. Just sit. and think. About what? Everything. Organisations, processes, and people. Approached from multiple disciplines. The modules that followed showed me the personal side of organisations, how to develop personally and how to encourage, make, and be the change.

This journey gave me a safe space and a community of people that I can proudly say that I was a part of. I have developed many of my skills s including presentation, writing and reflecting skills. Honours gave me a new way of thinking and a tool to do so in the future. My leadership majorly changed and honours helped me to figure out who I am, what I stand for, and what I strive to be. It taught me that it is okay to be a servant leader, to just stop and listen to what people have to say, and how they feel.

I would like to thank my teachers and fellow students for the amazing one-and-a-half years we spent together. I hope that in the future when we meet we can sit down for a cup of coffee and reminisce about the time we spent together. Thank You!

References

Ascalon, A. (2022, October 12). *12 team building personality tests.* Team Building Hub. https://teambuildinghub.com/blog/team-building-personality-tests/

Cameron, E., & Green, M. (2020). *Making sense of change management: A complete guide to the models, tools and techniques of organizational change.* Kogan Page.

Cureu, P. L., Ilies, R., Vîrgă, D., Maricuoiu, L., & Sava, F. A. (1970, January 1). *Personality characteristics that are valued in teams: Not always "more is better"?* NUS. https://scholarbank.nus.edu.sg/handle/10635/179003

Emre, M. (n.d.). *How do personality tests work?.* Merve Emre: How do personality tests work? | TED Talk. https://www.ted.com/talks/merve_emre_how_do_personality_tests_work

Furnham, A. (1970, January 1). *Myers-Briggs Type Indicator (MBTI).* SpringerLink. https://link.springer.com/referenceworkentry/10.1007/978-3-319-28099-8_50-1

Kam, C. (1970, January 1). *Enneagram.* SpringerLink. https://link.springer.com/referenceworkentry/10.1007/978-3-642-27771-9_200235-1

Kvasnevska, A. (n.d.). *How to use personality tests in team building: Your non-trivial guide. How to Use Personality Tests in Team Building: Your Non-Trivial Guide.* https://www.gomada.co/blog/how-to-use-personality-tests-in-team-building

Lee, K., & Ashton, M. C. (1970, January 1). *The HEXACO model of Personality Structure.* SpringerLink. https://link.springer.com/referenceworkentry/10.1007/978-3-319-28099-8_1227-1

Leikvoll, V. (2022, September 6). *80% of Fortune 500 companies use personality tests, but are they ethical?.* Leaders.com. https://leaders.com/articles/business/personality-tests/

Mendes, N. (2023, January 31). *Our team tried the 3 most popular work personality tests, and there was a clear winner.* Work-Life by Atlassian. https://www.atlassian.com/blog/teamwork/work-personality-tests

Owen, J. E., Mahatmya, D., & Carter, R. (1970, January 1). *Dominance, influence, steadiness, and conscientiousness (DISC) assessment tool.* SpringerLink. https://link.springer.com/referenceworkentry/10.1007/978-3-319-28099-8_25-1#citeas
Quinn, S. M. (2017). Feeding our identities: BuzzFeed quizzes as a tool for personal ... https://docs.rwu.edu/cgi/viewcontent.cgi?article=1000&context=communication_theses

Riso, D. R., & Hudson, R. (2000). *Understanding the enneagram: The practical guide to personality types.* Houghton Mifflin Co. Ryder, L. (2020, December 23). The surprising power of personality tests for teams at work. A blog for teams by Trello. https://blog.trello.com/personality-tests-for-teams-at-work

The Individual Part of Group Creativity

Encouraging Students to Reflect on their Personal Preferences in Structuring Creative Processes

Irina Kramers

Project supervisor: Dr. L. Carminati

Introduction

This change project aimed to raise awareness about the relation between creativity and group setting. While there is not, and should never be, a direct answer to the question "how can I be most creative?", it remains important to give it some thought. Because it is certainly possible to influence creativity, for better or for worse.

Context

Below follows an overview of the (general) advantages and disadvantages of different group settings with regard to creativity.

Individual creative process

For certain individuals, being alone is preferable, if not necessary, to come up with and develop new insights. This is because they need to focus deeply, without interruptions. Csikszentmihályi (1996) emphasises that these individuals likely already possess a certain predisposition towards creativity. The converse is also true: Long et al. (2003) argues that solitude improves creativity, because it allows the mind to think freely. Schilling (2017) combines the two aspects into one, arguing that a connecting factor between people that are considered geniuses by society is spending time alone and being an 'outsider' in social situations. The reason would be that these individuals are less aware of or bound by social norms and existing beliefs. However, a downside is that the lack of awareness may force them to re-develop theories and concepts (Paulus et al., 2020) that have already been established, before they get to groundbreaking ideas. The degree of isolation and lack of social networks would also impair their ability to share their ideas with the public.

Partnered creative process

Instead of working alone, people might team up during projects. While this gives less room for quiet contemplation, it opens the door for direct feedback on new ideas and concepts. This will result in ideas that may be considered less creative, but more practical (Glăveanu et al., 2019). A partnership where complementing skill-sets are present may also be mutually beneficial on the long term (Paulus et al., 2020).

Group creative process

According to Moore (2000), the composition of the groups is a major factor in resulting creativity. Groups with high cohesion and knowledgeable people would perform better than individual students, whereas groups with low cohesion and knowledge would perform worse. While a 'classic' in-person group brainstorm session is generally assumed to be productive (Paulus et al., 1993), it is not beneficial for creativity. This is likely because the exchange of ideas happens too slowly (Diehl & Stroebe, 1987). Paulus et al. (2020) suggests two alternatives: sharing ideas electronically, or writing them down before engaging in the group discussion (Heslin, 2009).

Paulus et al. (2020) emphasises that neither working alone nor together is objectively better than the other, and that often, a combination of the two might be best. Personality and personal preference (Jaumotte et al., 1974) play a large role in this.

Creativity at the University of Twente

Working in teams is a major and inescapable part of studying at the University of Twente. In fact, it is the first point mentioned in the Twente Education Model (TOM) (*Educational model | University of Twente*, n.d.). In my experience, however, the intricacies and difficulties of teamwork are not yet given enough attention in the courses. While it is encouraged to focus on effective group work as a separate learning aim, groups that already function adequately do not receive much guidance in this matter. It seems that the only two considered factors are the quality of the end result, and whether or not each group member has contributed equally.

In the Honours Processes of Change programme, more attention is given to the theory behind group dynamics. Students are encouraged to reflect on their personality type, strengths and weaknesses, and form teams where diverse personalities are represented equally. This has shown to improve the originality of the results, and the working efficiency (Rutherfoord, 2001).

Still, one aspect is neglected. It is stated in the TOM that the goal is for students to "[...] collaborate intensively with people from other disciplines to arrive at new, surprising insights and designs." This sentence suggests that group composition is a deciding factor for yielding creativity. While this is not untrue, creativity can also be a highly individual process (see section Context). Therefore, it can be argued that a group's results would benefit greatly if the group puts effort into finding a way to maximise the creativity of all individual members.

Target group and change goals

Thus, the aim of this change project was to increase students' awareness of their personal strengths and preferences in creative processes. Since this is a rather broad concept, it was narrowed down to three sub-aspects:

- *In which group setting do students most enjoy the creative process?*
- *In which group setting do students feel they are most creative?*
- *In which group setting do students feel most satisfied with their work?*.

It must be noted here that 'group setting' may refer to working individually, in pairs, or in different structures of group work. Ideally, finding the answers to these question could help students find (new) ways to create or to be creative. Additionally, they could use this knowledge in study projects, by consciously (pre-)structuring their input during brainstorm sessions.

The targeted students were seven members of the Bellettrie, the association that manages the student library. This association hosts weekly creative writing evenings, where students come together to work on individual projects. It could be argued that this is a group of people who have likely already given some thought to their own creativity, rendering the change intervention less effective. For some (but likely not all) participants, this may be true. However, given the limited time-frame of the project, only one workshop was held. The efficacy of the intervention therefore relied heavily on the participants' ability to notice and identify small differences in their (perceived) results for the different exercises. This would be easier for people who already have some experience with both creativity and reflection. In fact, Verhaeghen et al. (2005) shows a direct link between creativity and self-reflection, further validating the choice of target group.

There are more reasons for choosing this particular target group. Firstly, the association members come from various years, nationalities and studies. The diversity of the group should positively impact creativity within the group (Rutherfoord, 2001). Although the TOM (and thus, the emphasis on teamwork as a facilitator for creative results) only applies to Bachelor students, it was assumed that students from higher years have either done a Bachelor at the UT or have had a similar experience working in groups. Secondly, most of the group members already knew and were comfortable around each other. The high group cohesion should again enhance group creativity (Moore, 2000). The amiable atmosphere should also stimulate individual creativity (Paulus & Nijstad, 2019).

Approach

The structure of the change intervention closely resembled that of a research experiment The research question could have been, for example: *how can group setting stimulate individual creativity, and how do people perceive the effects of the resulting process?*. The difference, however, is that the aim was for the *participants* to reflect on this question and answer it for themselves, rather than just providing data for the researcher.

Workshop set-up

To address the project goal and reach the target audience, one two-hour workshop was held in the Bastille, on the evening of Wednesday June 7th. It consisted of a series of writing exercises, to be performed both individually and in cooperation with others. The participants were given a certain amount of time to complete small stories based on a set of prompt cards. These were made by members of the Bellettrie a few months back, but have not yet been used much. The cards contain random prompts on five aspects of a story: setting, object, subject, action, and description. The different exercises are described in table 1. It can be seen in table 1 that the mentioned writing media are laptop and paper. This is simply a matter of convenience. For exercise 1, it is best if already-written text can be easily edited. For exercise 2, it is easier and less time-consuming to switch around pieces of paper than to try to set up cleverly shared documents.

The exercises were all based on specific types of group settings mentioned in section Introduction.
Exercise 1 follows the last suggestion given in section Group creative process, by Heslin (2009): brainstorming individually and writing down the ideas before sharing them with the group (or partner, in this case).
Exercise 2 is an alternative approach (Paulus et al., 2020) to the same principle: it is essentially a group brainstorm session, but since the ideas are all written down simultaneously, the creative flow of the people will not be interrupted by having to wait their turn to speak. Additionally, this method ensures that no ideas can be ignored.
Exercise 3 most resembles a classic brainstorm session (see section Group creative process).

Table 1: general schedule for the writing workshop, showing the task description, duration, writing medium, and whether or not group discussions or prompt cards are allowed during the exercise. The timings are flexible. If there is an uneven number of participants, there will be one group of three for exercises 1 and 5.

	Task/exercise	**Duration**	**Medium**	**Discussion**	**Prompt cards**
1	Write individually on separate prompts until half time, then pair up and try to combine the two stories coherently.	20 min	Laptop	1st half: no 2nd half: yes	Yes
2	Write individually, but switch every few minutes (going clockwise). Given prompts do not switch.	30 min	Paper	Yes	Yes
3	Write individually, but discuss with every group member to make sure the stories do not conflict. Prompts are not given at the start, but will be added every few minutes.	20 min	Either	Yes	Central
4	Write individually on separate prompts.	10 min	Either	No	Optional
5	Write in pairs, switch every sentence.	20 min	Either	Yes	Optional

Participants are forced to talk and make sure that their ideas are all aligned. It will be interesting to see if participants notice the difficulty of having their thought processes interrupted so frequently (Diehl & Stroebe, 1987).
Exercise 4 is an example of working individually (see section Individual creative process). Group discussion is discouraged, so that people will have an easier time focusing on their story (Long et al., 2003).
Exercise 5 is a rather intensive example of a partnered creative process (see section Partnered creative process). The work of Glăveanu et al. (2019) can be interpreted to suggest that the resulting stories might be less creative, but more coherent.

During the workshop, some small changes were made to the schedule depicted in table 1. Some participants were late, so the exercise duration was shortened. Following the preferences of the group, all exercises were executed on laptops. For exercise 2, these were passed around, adding an extra element of chaos. Prompt cards ended up being used for each exercise. Because the duration of exercise 3 was shortened, it was decided to give the prompts at the start rather than adding them one by one.

Result gathering

Results were gathered through a short survey sent to the participants after the workshop. The survey questions were divided into two parts, focusing not only on the actual preferred group settings of the students, but also on the perceived effectiveness of the workshop. Firstly, there were some general questions, related to the overall effectiveness of the workshop (mostly open questions). Secondly, there were specific questions related to the perceived enjoyment, creativity and result quality for specific exercises (mostly multiple choice grids). In addition to the survey, some of the participants were asked in person to give their opinion on the workshop. This was done informally, both at the end of the workshop, and two weeks later. The responses were not recorded word-for-word. A short summary of the in-person responses was compared with the answers given in the survey and with observations from the workshop, to obtain a more meaningful view (Campbell et al., 2020) on the quantitative results.

Results

Below follow the results of the change intervention. Firstly, the quantitative results from the survey are discussed (section Quantitative results). Secondly, the quantitative results: observations, answers to open survey questions and opinions given after the workshop in a follow-up interview (section Qualitative results). Thirdly, the results are cross-examined to yield insights into overarching trends (section Combined results). Finally, the conclusions are compared with the theory, and their validity is discussed (section Discussion).

Quantitative results

Figure 5 depicts the rating of the different exercises (with numbers corresponding to table 1), based on level of enjoyment, perceived level of creativity and satisfaction with the end result. It can be seen that the three markers, enjoyment, creativity, and satisfaction, are strongly correlated, with satisfaction scoring the highest (total average rating 0.67), and creativity scoring the lowest (total average rating 0.60). Exercise 5 has the highest average rating (0.81), followed closely by exercise 2. Exercise 3 has by far the lowest score (average rating 0.29).
Figure 6 again shows rating of the different exercises, but now differentiates between study type and averages the enjoyment, creativity, and satisfaction scores. It can be seen that the total average rating of all exercises is much higher among the Bachelor students (0.78) than among Master and other students (respectively 0.53 and 0.54). A possible explanation for this could be that Bachelor students have experienced less years of hard work and still have more enthusiasm left. But that is besides the point of this course. Another notable result is the difference in rating for exercise 3. Bachelor students rate this exercise much higher than Master and other students. Finally, the highest ranking exercises for Bachelor students are 2 and 5, while Master students prefer exercise 1.

Figure 7 shows the participants' final answers to the question "when are you at your most creative?". Interestingly, none of the participants expressed a preference for either working alone or working in a group. The most prevalent response was 'a combination of those' (where 'those' refers to the three different group settings mentioned in figure 7 and illustrated in section Context). This matches the results found in figure 5, where the two highest scoring exercises are a paired exercise and a variation on a group brainstorm session.

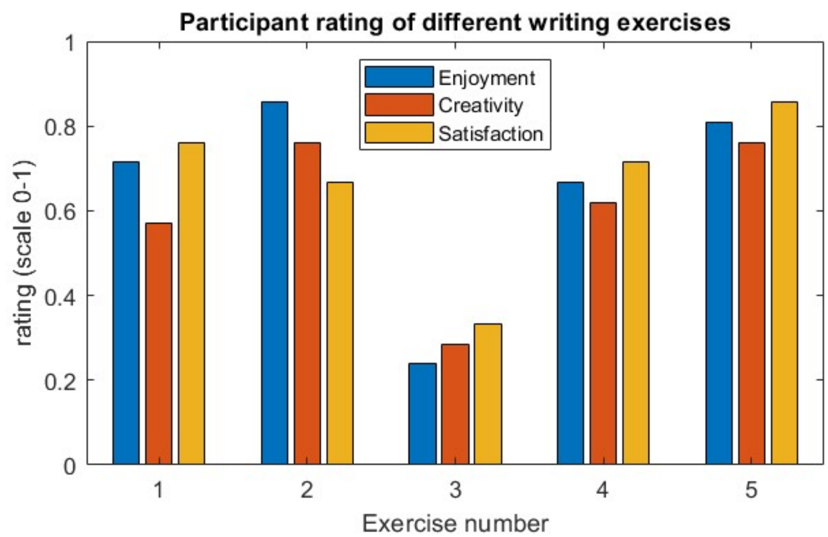


Figure 5: participant rating on a scale of 0 (low) to 1 (high) of the different workshop exercises, based on enjoyment, perceived creativity and result satisfaction.

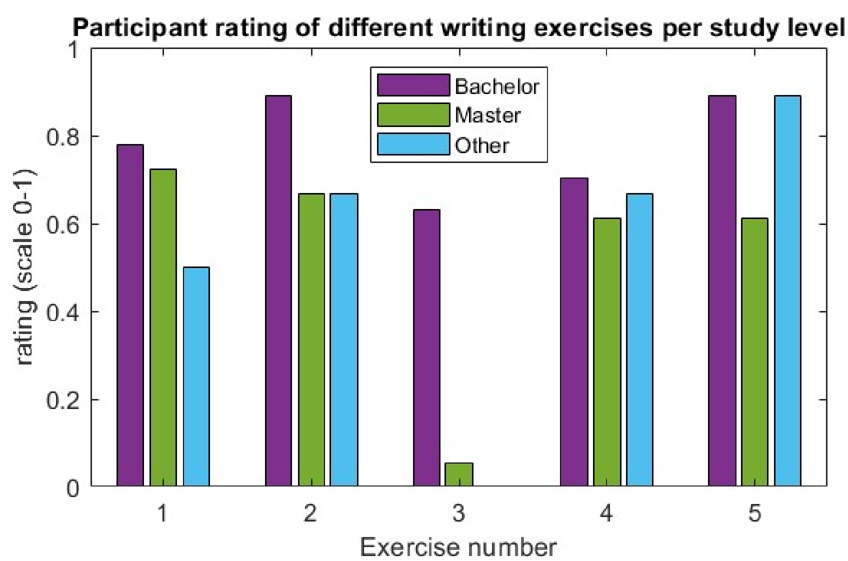


Figure 6: participant rating on a scale of 0 (low) to 1 (high) of the different workshop exercises for the different study levels. The shown rating is the average of the enjoyment, creativity and satisfaction ratings per level.

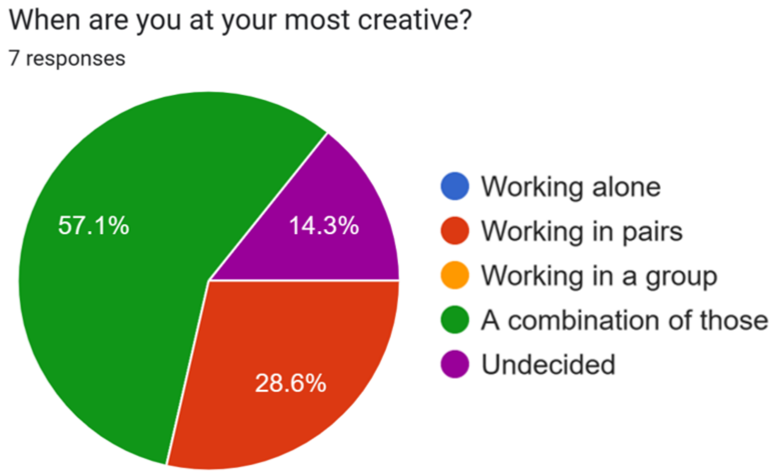


Figure 7: answers to the final survey question: "When are you at your most creative?".

Qualitative results

This section is comprised of three parts: observations, answers to open survey questions and and opinions given after the workshop in a follow-up interview. A summary of the relevant responses is included for all three.

Observations

Throughout the evening, it was apparent that people would have liked more time between exercises, to share each others' stories and have a quick break. There were no negative comments about any of the exercises, though (unless "my brain stopped working" counts as a complaint - that is open for interpretation). After the workshop, a desire was expressed to host more writing workshops of a similar vein.

The participants were silent and focused during all individual exercise parts. For the duration of the group exercise (exercise 3), there was a loud central discussion, with several conscious, but largely fruitless, efforts to structure and regulate the process. One participant gave up near the end of the exercise, because they were so busy discussing that they felt like they did not get to write enough. During the paired exercises, there was more variation: some groups preferred to discuss animatedly, others were quieter.

Survey questions

All participants enjoyed the session. About half of them pointed out the 'working together with others' element as being interesting and stimulating. The word "brainmelting" made an appearance as well, as a variation on "my brain stopped working".

As for how the workshop inspired people, the answers were varied. Some participants mentioned specific characters/story ideas born from the writing exercises that they were interested in exploring further. Others mentioned that the workshop motivated them and helped them think more openly.

Follow-up interviews

For the follow-up, three participants were asked again for their opinion on the writing workshop, approximately two weeks afterwards. Three questions were asked, listed below with responses. There are two closed questions, which is usually undesirable. In this case, the questions were chosen because they seemed to best reflect the questions' intentions. To add to that, the conversational setting allowed for follow-up questions if the given answers were limited to yes/no.

What did you think of the workshop?
All asked participants said the workshop was fun. One of them gave a more detailed answer, stating that it was exhausting because of the amount of creative energy required, and should have been (half) an hour longer, so that more breaks could be incorporated. Still, they enjoyed the novelty and 'controlled environment' of the set-up.

Did the workshop help you figure out when you are at your most creative?
All asked participants answered yes to this question. One of them argued that it was because the workshop helped them understand that being free of consequences, and letting go of expectations, allows for more creativity.

Can you use this knowledge in university-related projects?
Answers to this question were varied. One of the asked participants did not feel like the university allows for enough freedom to structure creative processes in a productive way. Another said that the workshop mostly affirmed things they already knew about themselves, helping them to be more confident in that knowledge. The last participant gave a definitive yes, pointing out the value of practising to work with limited resources to a common narrative, which challenges existing thought patterns.

Combined results

The overall favourite exercises are 2 and 5 (figure 5). Since exercise 2 is a variation on group work and exercise 5 an intensive way of working in pairs, these findings match figure 7, which shows that working in pairs and working in a combination of group settings make up 85.7% of the answers. This is supported by the answers to the open survey questions (section 3.2.2), where working together was mentioned often as a reason for the enjoyability of the workshop.

The overall least favourite exercises are 3 and 4 (figure 5). Since exercise 3 is an example of 'classic' group brainstorming and exercise 4 is purely individual, these findings match figure 7, which shows that none of the participants preferred working alone or working in a group. The workshop observations (section Observations) support this: participants seemed quite frustrated for part of exercise 3, to the point where one of them gave up on writing their story.

Discussion

This section will first go over the most important conclusions that can be drawn from the results mentioned in the previous subsections. Next, the validity of the results will be addressed, as well as points of improvement.

Conclusions

First and foremost, it can be concluded that the intervention was successful. The answers to the survey questions (section Survey questions) and follow-up (section Follow-up interviews) suggest that the workshop has reached its primary goal: making students more aware of their personal strengths and preferences in creative processes, at least for some of the participating students. Participants indicated that the workshop increased motivation and inspiration, allowed them to think more freely, and adapt to different imposed structures in group work.

From figure 5, it is apparent that enjoyment, perceived creativity and result satisfaction are strongly correlated. Though this conclusion is unrelated to the project's aim, it serves to validate the choice of sub-aspects made in section , and suggests that enjoyment and result satisfaction are representative measures for (perceived) creativity.

Why exercises 2 and 5 are preferred can be partially explained with theory mentioned in section Context. The set-up of exercise 2 is a variation on a suggestion made by Paulus et al. (2020) to improve creativity in groups: sharing ideas electronically. Since there was no measure for practicality (Glăveanu et al., 2019) of the results and no long-term effects (Paulus et al., 2020) could be measured, there is no theory in section Partnered creative process supporting the efficacy of exercise 5. However, the attentive reader might have noticed that exercises 2 and 5 are quite similar, since they both play with the concept of switching writers in a story. Thus, it might be that the format of the exercise had a greater impact on overall rating than the group size.

Why exercises 3 and 4 were the least popular could have different reasons. The work of Diehl & Stroebe (1987), mentioned in section Group creative process, proposes the rate at which ideas are exchanged as an important limiting factor in groups. Indeed, during exercise 3, the workshop participants struggled to make their ideas heard while also keeping up with the central conversation. Exercise 4 had the opposite problem: it was very quiet. While that is not necessarily a bad thing, most participants indicated afterwards that they enjoyed the workshop because of the 'working together' part, and were inspired by input from others (sections Survey questions and Follow-up interviews). Therefore, it seems reasonable to assume that exercise 4 did not contribute much to their positive experience. In support of this assumption, section Individual creative process mentions as downside to working alone that it may take more time to get to new and creative ideas (Paulus et al., 2020). Since the time for the exercise was limited, it makes sense for the participants to feel less creative during this exercise.

From figure 6, it can be seen that Bachelor students rate exercise 3, the group discussion, much higher than master and 'other' students. A possible explanation would be that the TOM (Educational model | University of Twente, n.d.) is effective in teaching students to work well in groups, thus making group work more enjoyable to them.

Limitations and future research
There are several factors that limit the credibility of the results and efficacy of the intervention. The most important one is the sample size: with only seven participants, results can not be representative of the student body. Additionally, there are many factors (like the order of the exercises) that could influence the results of the intervention, so no conclusions can be traced back to theory with surety. Lastly, perceived creativity does not necessarily equal actual creativity. This was not deemed to be of much concern, since Pretz & McCollum (2014) claim that perceived creativity, when related to specific tasks, is often fairly accurate. Below follow the most important points of improvement.

It was frequently pointed out (sections Observations and Follow-up interviews) that the workshop was a bit rushed. If a similar workshop is organised in the future, it should be taken into account that (at least with this target group) the chance of participants arriving late is high, and that there is more time needed in between exercises. That way, participants can share their stories and gain inspiration from what others came up with (picture, for example, a group of competitive frog counters, and a top hat stealing all the frogs. Or a dramatic reading of a story involving a (possibly not very) French potato).
Additionally, if the hypothetical future workshop takes on more of a research-based approach, it would need a much larger sample size to get conclusive results. Furthermore, different study tracks could be considered as a factor in creative preferences.

Going forward

The previous section was focused mostly on the overall preferences of students in regard to group setting. It was shown that the highest rating exercise types correspond to alternative approaches to the 'classic' group (or paired) brainstorm discussion. The university might want to rethink their curricula to incorporate some education on different ways to structure creative processes, to make students aware of the possibilities. They should especially remain wary of focusing on a specific type of group setting as being 'most effective', because everyone is different and works differently.

As it is, the given workshop's aim was precisely that - but on much smaller scale. Seven students were challenged to think about what would work best for them. Most of them considered the workshop effective and/or inspiring. Hopefully, the participants will be able to apply this self-knowledge in both personal and study-related projects. If they do so actively, any project partners they might be working with might also be inspired to think about their own preferences. Best case scenario, the change would spread across the student body even without the university stepping in. But that is mostly wishful thinking.

Acknowledgements

I would like to thank Dr. L. Carminati and the Processes of Change group for providing input and feedback throughout the entire process, Kylian van Dam for inspiring the initial idea and suggesting ideas on how to achieve the actual change intervention, and Dr. M. M. Koehorst for coaching me throughout the process.

Personal development

The Processes of Change track did not suit me at all. And in that way, it was perfect. While my personality (according to various personality tests, especially the one facilitated by the Honours track) is versatile and can depend heavily on my mood and energy level, I do tend most strongly towards observing, coordinating and supporting roles. To this day, I do not consider myself an exceptional or born leader. I chose the Processes of Change track precisely for that reason: to challenge myself and to learn the skills I felt I was lacking. It has been difficult at times, because I needed to adjust to a mindset and way of working wholly different from what I was used to.

My learning process can be roughly divided into three stages: changing my mindset, learning to lead, and finding balance.
An unpleasant discovery for me was that I did not really believe in change. Like surely many others, I could not imagine being able to make a difference - because if it had been possible, would it not have been done already? It took me a while to start seeing that change can also be small, or even immeasurable. That change does not need to be intended, or planned. Through tutoring students and acting as a contact person, I learned the worth of changes on a small scale.
I learned the term 'individualised consideration' for this type of leadership. It suited me, small groups and small power gaps. As a leader, I wanted to be approachable, and I wanted to be able to take the time to help people if needed. Still, I felt beholden to some ideal of what a leader was supposed to be: an inspirational speaker, always energetic and cheerful, endlessly stress-resistant, the list goes on. For a while, I took every teaching job, tried to lead every group discussion, every project. To practice leadership, durability, confidence. Unsurprisingly, I ended up overextending myself badly.
At the start of the coaching track and the final change project, I was too tired to even contemplate the idea of leading a group. It was a significant setback in the expectations I had for myself. Instead of working on being an inspirational leader, I needed the coaching sessions to focus on finding and keeping a healthy balance between study and rest. It was a good lesson to learn: you can only be a leader if you can keep yourself from burning out in the process.

Ironically, my struggles as a student and aspiring leader were the inspiration for this project. I am generally considered creative by others. But during my study course, I have rarely ever felt like I was creative, or innovative. Having to sit through unproductive group discussions for hours on end was terrible for me, so I never enjoyed projects. When I addressed this during the coaching sessions, we took some time discussing my values, skills and way of learning. As it turned out, they fit quite poorly with the university's learning model. I knew I could not be the only one who had trouble with this. And so, I set up an intervention that would help people to ask themselves same question: "what works for me?", instead of "what is expected of me?".
I think the project helped me to solidify the realisation that, while growth and change needs some structure, it is that same structure that determines its limits. The writing workshop itself was a quite tangible example of that: people were inspired by the challenges posed by the different exercises. At the same time, though, they felt pressured by the schedule bound to those exercises. If I were to do it again, I would probably split the intervention into different parts, holding a few workshops over the course of the months, rather than just

one. That will ease the time pressure of the schedule and allow for deeper contemplation of the separate aspects. I might also include pictures as prompts, instead of just words. That could stimulate ideas in a very different way, which may provide additional insights.

References

Campbell, R., Goodman-Williams, R., Feeney, H., & Fehler-Cabral, G. (2020). Assessing Triangulation Across Methodologies, Methods, and Stakeholder Groups: The Joys, Woes, and Politics of Interpreting Convergent and Divergent Data. *American Journal of Evaluation*, 41(1), 125144. https://doi.org/10.1177/1098214018804195

Csikszentmihályi, M. (1996). *Creativity: Flow and the psychology of discovery and invention.* New York, NY: Harper Perennial. https://ci.nii.ac.jp/ncid/BA2843175X

Diehl, M. R., & Stroebe, W. (1987). Productivity loss in brainstorming groups: Toward the solution of a riddle. *Journal of Personality and Social Psychology*, 53(3), 497509. https://doi.org/10.1037/0022-3514.53.3.497

Educational model | University of Twente. (n.d.). Universiteit Twente. https://www.utwente.nl/en/education/bachelor/bacheloreducation/

Glăveanu, V. P., Gillespie, A., & Karwowski, M. (2019). Are people working together inclined towards practicality? A process analysis of creative ideation in individuals and dyads. *Psychology of Aesthetics, Creativity, and the Arts*, 13(4), 388401. https://doi.org/10.1037/aca0000171

Heslin, P. A. (2009). Better than brainstorming? Potential contextual boundary conditions to brainwriting for idea generation in organizations. *Journal of Occupational and Organizational Psychology*, 82(1), 129145. https://doi.org/10.1348/096317908x285642

Jaumotte, A. L., Germain, J., & Stein, M. I. (1974). *Stimulating Creativity Volume 1: Individual Procedures.*

Long, C. R., Seburn, M., Averill, J. R., & More, T. S. S. (2003). Solitude Experiences: Varieties, Settings, and Individual Differences. *Personality and Social Psychology Bulletin*, 29(5), 578583. https://doi.org/10.1177/0146167203029005003

Moore, R. B. (2000). Creativity of Small Groups and of Persons Working Alone. *Journal of Social Psychology.* https://doi.org/10.1080/00224540009600452

Paulus, P. B., Dzindolet, M. T., Poletes, G., & Camacho, L. M. (1993). Perception of Performance in Group Brainstorming: The Illusion of Group Productivity. *Personality and Social Psychology Bulletin*, 19(1), 7889. https://doi.org/10.1177/0146167293191009

Paulus, P. B., & Nijstad, B. A. (2019). Affective Influences on Creativity in Teams. In *The Oxford Handbook of Group Creativity and Innovation* (pp. 103107). Oxford University Press.

Paulus, P., Kenworthy, J. B., & Marusich, L. R. (2020). Alone versus together: Finding the right balance for creativity. *ResearchGate*. https://doi-org.ezproxy2.utwente.nl/10.1002/9781119576457.ch19

Pretz, J. E., & McCollum, V. (2014). Self-perceptions of creativity do not always reflect actual creative performance. *Psychology of Aesthetics, Creativity, and the Arts*, 8(2), 227236. https://doi.org/10.1037/a0035597

Rutherfoord, R. H. (2001). *Using personality inventories to help form teams for software engineering class projects.* https://doi.org/10.1145/377435.377486

Schilling, M. A. (2017). Serial breakthrough innovation: The roles of separateness, self-efficacy, and idealism. *SSRN Electronic Journal*, December 17. http://dx.doi.org/10.2139/ssrn.31901

Verhaeghen, P., Joorman, J., & Khan, R. (2005). Why We Sing the Blues: The Relation Between Self-Reflective Rumination, Mood, and Creativity. *Emotion*, 5(2), 226232. https://doi.org/10.1037/1528-3542.5.2.226

From Facilities to Synergies

Redefining the DesignLab Experience

María Cobo Muñoz

Project supervisor: Dr. L. Carminati

Introduction

In today's rapidly evolving society and organizations, creativity and innovation have emerged as crucial drivers for success. Numerous studies and experts emphasize the significance of fostering creative environments that stimulate collaboration, ideation, and problem-solving ((Amabile, 1998)); (Florida, 2002)). One institution that embodies these principles is DesignLab, a **creative and collaborative ecosystem** situated within the University of Twente.

DesignLab serves as a hub where stakeholders from different disciplines, including researchers, societal organizations, students, and citizens, come together to find solutions for societal issues (DesignLab, DesignLab UTwente Home page, 2023). This dynamic and well-equipped **facility** offers educational areas, workshops for rapid prototyping with tools like laser cutter, 3D printers, wood workshop, sewing machines, and a photo studio. Their spaces are designed to trigger innovative thinking, stimulate collaboration, and facilitate the prototyping of ideas, alongside multi-purpose rooms for education, research, and (business) projects (DesignLab, DesignLab Facilities, 2023).

The core approach of DesignLab is **Responsible Futuring**. This approach departs from society and its challenges rather than focusing solely on solutions and technology. It is rooted in the design thinking methodology and employs trans-disciplinary practices. Responsible Futuring provides a framework to work with the stakeholder and it is divided into 4 phases: Connect & Relate, Understand & Frame, Imagine & Ideate, and Reflect & Reframe (DesignLab, Responsible Futuring, 2020).

An integral part of DesignLab is the **DreamTeam**. Integrated by student assistants called DreamTeamers, they assist students with their projects, ensure that DesignLab's space is functioning properly, and provide a modern and fresh touch to ideas and projects within the DesignLab.

However, regardless of DesignLab's mission and intentions, there exists a significant **discrepancy** between its **intended perception** and the external perception of the facility. Despite defining itself as an environment and ecosystem for synergies, co-creation, and conversations, it is commonly perceived as merely a place with study facilities and workshops. This misalignment in perception affects both visitors and staff, resulting in minor issues in daily operations.

Some examples of the **small daily problems** the dissonance in perception causes are lecturers expressing frustration due to the redirection of catering food delivery to the kitchen area instead of directly to their rooms. This change in procedure was implemented with the ecosystem philosophy in mind, aiming to encourage all actors in the space to interact with each other and getting the lecturers out of their rooms to engage with other people around. However, without considering this underlying intention, the inability to have food delivered to their reserved room becomes a source of annoyance, leading to recurring complaints.

Another illustrative example is that some people, mostly staff, complained about the noisy Ping-Pong table. They voted to get rid of it, without fully appreciating the concept behind it, which is to serve as a catalyst for initiating conversations and contributing to the overall ambiance. If the Ping-Pong table were to be eliminated, an alternative element would need to be introduced to fulfill this role. Nonetheless, during the voting process, this factor seemed to go unacknowledged. These issues have not only been identified by the management team, but also have been generally acknowledged by DreamTeamers and frequent visitors when asked for their opinion about the topic.

With this as a starting point, the **target groups** for the intervention are both external (visitors and students) and internal (DreamTeamers and staff) agents around DesignLab.

Change goals

Since the intervention has two target groups, the **goal** for each varies slightly. However, the main common goal remains as shifting the individuals' perception towards DesignLab and generating **ideas** on how this sense of ecosystem can be better communicated.

The goal for **visitors** in specific is to create **awareness** about the values and philosophy of DesignLab, give them insights on what goes unnoticed by them.

While for the **DreamTeamers** and staff the goal is to give a **reminder** of the values they already know and stimulate the **sense of ownership** of the space, so they can better integrate the values in their daily operations.

These goals are mainly focusing on raising awareness around the problem both internally and externally. It is known from **Behavioral Change Theory** (James, 1997) that consciousness raising is one of the first steps that drive a behavioral change. With the right information, the individual can steer their perception, intentions and thus, their actions (Bosnjak M, 2020).

Change approach

In order to attain the aforementioned goals, two interventions were designed. Firstly, a presentation in the form of DesignLab's **Tosti Talks**; and secondly, a **generative session** with DreamTeamers and staff following the Responsible Futuring principles.

Tosti Talk

Tosti Talks are short talks hosted at DesignLab' kitchen area every Tuesdays during the lunchbreak. Speakers from different backgrounds share their knowledge by giving a small presentation while the assistants enjoy free tostis.

For the aim of this project, a Tosti Talk was organized about the values of DesignLab, targeted mainly at visitors. The selected speaker was the Co-Founder and Manager of DesignLab. Her authority figure can contribute to the message deliver, following from Cialdini's principle of authority (Cialdini, 2016), and the free food can relate to the principle of reciprocity, as people are more inclined to do something in return for a prior received favor (Cialdini, 2016).

It started with a peak of the history on how it was founded, the space, the team and under what principles. Then go forward to the present highlighting what they still stand for (Responsible Futuring, creating an ecosystem). Everything was presented in a storytelling format, including some anecdotes that helped exemplify what was explained. Storytelling has been proven to be an effective leadership tool, as it addresses emotions of people not their rational mind and has the potential to overcome barriers people build to protect themselves against the external world and new ideas (Mládková, 2013). In general, the message that was conveyed was that DL is not just the facilities as it can seem at first, but much more.

Figure 8: Capture of the Instagram story for promotion of the Tosti Talk

The event was promoted via Instagram (see Figure 8) and WhatsApp group chats. And after the presentation short interviews were performed with the attendees to evaluate the effectiveness of the talk. The open questions presented were: *What did you think about the talk? Did your perception of DL change?*

Title: From facilities to synergies/Beyond facilities: Values shaping DesignLab's identity

Description: Join us as we dive into the captivating journey of DesignLab, exploring its founding principles and the values that define its essence. Discover how DesignLab goes beyond its physical facilities, embodying Responsible Futuring and creating an ecosystem of innovation.

Generative session

After some brainstorming before designing the interventions, it became apparent that the very same design of the space is flawed in the sense that it is not possible to read the philosophy from the space itself. There are ways to contribute more to that feeling by rearranging the rooms with different elements, as literature shows (Lippman, 2020).

In this generative session, staff and DreamTeamers could re-imagine DesignLab while collaborating and sharing perspectives. This way a concept of space could be obtained to work towards even after the PoC intervention, and it served as a reminder about the core values of DesignLab and promote a sense of ownership.

The session was planned to last 1,5 hours and had two moderators, one DesignLab's project coordinator experienced in moderating generative and co-creation sessions and the other the author of this intervention. There was an open call for all staff and DreamTeamers that wished to assist, and ice-cream was advertised, again recurring to Cialdini's reciprocity principle (Cialdini, 2016).

Such an activity fits into the transformational leadership style presented in the FRLM Theory of leadership (Bass & Avolio, 1994). Bass and Avolio (1994) stated that stimulating intellectually people and reframing problems is an active and effective way of bringing change into organizations.

This hands-on session followed the Responsible Futuring phases. As part of Connect & Relate, the first part of the activity was aimed at finding out the current perception of the participants towards DesignLab. This was done by brainstorming individually, by writing on post-its everything they associated with DesignLab. In Understand & Frame, they ranked those values by sticking the post-its in a scale of relevance to put them in perspective for the next phase. For Imagine & Ideate, they engaged in an activity divided into groups involving LEGOs to redesign a room of their choice in DesignLab taking into account the values stated previously. And finally, for Reflect & Reframe, they presented their creations and reflected on how the new spaces matched with the values they established as important before. A more extensive plan can be consulted in Appendix B. (Appendices are not included in this version of the document, contact the author for more information)

After the session, similarly to the Tosti Talk, a round of evaluation was performed to assess the effectiveness of the intervention. An open discussion was encouraged to answer, both individually and as a group, the following questions "What did you think of the session?", "Has your perception of DesignLab changed?"

Results

Figure 9: Attendees to the Tosti Talk

The **Tosti Talk** had around 15 attendees, including members of the DreamTeam, students, and first-time visitors. This diverse group with different backgrounds contributed to a better overview of the effectiveness of the intervention.

4 people were selected for the small evaluation interview after the talk. They stated to have liked the talk and that they were provided with new information about DesignLab. Specially these comments "I thought [] that it was a place to work on projects [] But now I understand its purpose" and "it was helpful in explaining the goals of the space [] helps you understand it's purpose to a much more significant level" confirm the thesis of the wrong perception of the place and shows that the goal of the presentation was achieved.

The interviewees also gave some ideas on how to make DesignLab's identity more known to the public, such as providing a free coffee moment to promote relaxed conversations around the coffee machine or introduce more context and history about DesignLab in the already exiting mandatory Safety Tour for the workshops.

Figure 10: Generative session throughout the different stages

Regarding the **Generative Session**, four attendees with different roles within DesignLab, including coordinators, staff, and DreamTeam members, participated. It's important to note that the sample group consisted of individuals who were already familiar and active in DesignLab, which may have resulted in biased or limited findings compared to the larger target group. The session began with each participant sharing their own definition of DesignLab, followed by the moderator providing a detailed description of the organization's current challenge. This approach aimed to gather valuable insights while avoiding biases.

The participants' responses on post-it notes confirmed the initial perception of DesignLab as a place with dual aspectsits values and its physical space. However, they tended to emphasize the values side more strongly than expected, focusing on concepts such as "community," "new ideas," "network," and "growth"highlighting the intangible aspects. On the other hand, concepts related to the physical space, such as "work," "manufacturing," and "career prospects," received less attention. This could be attributed to the fact that the participants were highly involved in DesignLab, as mentioned earlier.

During the discussion on which elements were more desirable to identify and communicate DesignLab's identity (see figure 11), the concept of "community" played a significant role. It was agreed that the community should evoke an open and inclusive feeling. Additionally, "collaboration," "a place for inspiration," and being a "portal to UT's research and education" were considered important elements.

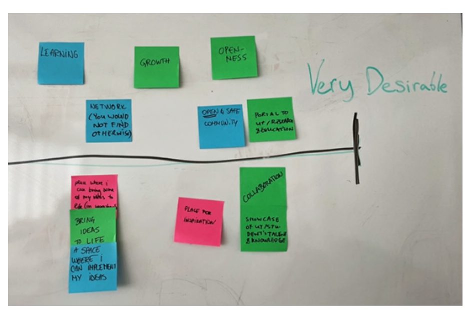


Figure 11: Desirability scale of values that represent DesignLab

An interesting comment was made regarding focusing more on idea generation rather than idea materialization, to prevent people from solely using the 3D printers.

Regarding the question, "What could make you feel more like the host of this house?" included in the session, there was consensus in the idea that authority and sense of ownership was lacking. Various ideas were proposed to address this, including reducing the presence of coordinators who might be perceived as obstacles and spending more time in DesignLab outside of regular working hours to develop a deeper connection with the space and its visitors.

Figure 12: "Outside room" concept

The next step in the session involved re-imagining and creating a new room in DesignLab. Two concepts emerged: the first was an outdoor space (see figure 13) designed for connection and reflection, utilizing nature to facilitate interaction without screens and allowing both DesignLab members and external visitors to relax and engage in reflective thinking. The second concept involved a digital zoo (see figure 12)an art installation on the second floor above the current Ideate room. This interactive installation would serve as a data visualization of activities within DesignLab, fostering community and collaboration by requiring individuals to contribute to keep the zoo "alive."

However, based on the flow and discussions during the session, it became apparent that redesigning the physical space was not considered an obvious solution. As a result, a new section was added to explore alternative ways of conveying DesignLab's values. Some ideas included shifting the marketing and communication strategy to focus on showcasing more projects and activities, strengthening online representation, reaching out to communities unfamiliar with DesignLab (such as neighbors in Enschede), creating regular courses to attract people to the facilities, and reinstating DesignLab's position as innovation leaders and frontrunners.

After the session, the evaluation questions regarding the intervention revealed that the participants enjoyed the program and that their vision of DesignLab was not changed but rather reinforced, focused, and put into perspective. They also reflected on how challenging this issue with the perception of the place is, given that it cannot exist without the physical space, but the values go beyond it, and the difficulty of effectively conveying this concept.

Figure 13: "Digital zoo" concept

Based on these results, it can be concluded that the session and intervention successfully achieved their goals of stimulating a sense of ownership and reminding the participants of the organization's values.

More extensive details on the results of both interventions can be consulted in Appendices A and C respectively. (Appendices are not included in this version of the document, contact the author for more information)

Advice for the target group

DesignLab holds a special place within UT, it is the university's little gem. It's a space where individuals feel a sense of belonging, akin to being in their "second home." Given the significance of this space, it is essential to communicate its value effectively. Prior to my intervention, steps were already being taken to address this, and my project served as a small contribution towards enhancing DesignLab's visibility and communication. Based on the sessions conducted and the results obtained, I would like to provide three specific pieces of advice to further steer DesignLab in the right direction:

1. Put yourself in the shoes of someone visiting DesignLab for the first time or someone unfamiliar with its purpose. It's important to recapture the fresh perspective that newcomers have upon entering the space. As time goes by, it's easy to disconnect and lose sight of that initial impression. By actively empathizing with first-time visitors, DesignLab can better understand their needs and create an environment that consistently welcomes and engages new individuals.

2. Consider incorporating an introductory video. As suggested during the Tosti Talk discussions, the current "safety tour video" feels underwhelming, given the anticipation surrounding it. Instead, this could be an opportunity to captivate people's attention and make them aware that they are about to embark on a meaningful DesignLab experience. The video could feature existing content that effectively showcases DesignLab's history, values, and context. Alternatively, a new video could be specifically tailored to provide an engaging introduction to DesignLab's unique atmosphere and offerings.

3. Continuously reinforce the values of DesignLab, both internally and externally. It is crucial to remind people of these values and periodically revisit and revise them as needed. People tend to forget, values evolve, and repetition is key to ensuring a consistent understanding. Consider using the tours as guided experiences to reiterate the core principles and keep them at the forefront of everyone's minds.

By implementing these recommendations, DesignLab can continue its journey towards improved visibility and effective communication, creating an even more vibrant and engaging environment.

My learning experience

This project has been transformative in shaping the leader I aspire to be. Throughout the module, I had the privilege of working alongside remarkable individuals who provided invaluable guidance and support. Their expertise and advice enabled me to develop essential organizational skills, enhance stakeholder communication, and effectively plan and moderate generative sessions. Looking back, I realize the importance of allowing sufficient time between sessions to incorporate and apply feedback received in earlier sessions.

During my coaching sessions, I focused on discovering my unique leadership style and strengthening my self-confidence. I've often struggled with feeling that my work is never good enough or that I could have done more, even when receiving positive feedback from my peers. It's crucial for me to explore alternative ways to seek validation and learn to find pride and satisfaction from within myself.

In addition to this project, I also took on a leadership position within my regular studies. Working closely with my coach, we analyzed what worked well and areas for improvement. It was a significant moment of realization when I embraced my leadership role and recognized that my more laid-back, laissez-faire style stems from my agreeable personality type (according to the HEXACO personality test), where prioritizing the well-being and freedom of others within a group is important to me. By embracing my supportive and inspiring traits (according to my Insights Discovery profile), I aim to further develop a transformative leadership style.

My ultimate goal is to become a leader who inspires and motivates others, fostering positive change within organizations. I feel more confident and capable as a result of this project, and I believe I am well-prepared to lead in my future career. However, I am aware that leadership is an ongoing journey, and I am committed to continuous growth and improvement.

Reference list

Bosnjak M, A. I. (2020). The Theory of Planned Behavior: Selected Recent Advances and Applications. *Eur J Psychol.*

James, O. P. (1997). THE TRANSTHEORETICAL MODEL AND STAGES OF CHANGE. *Health Behavior and Health Education.*

Cialdini, R. (2016). *Pre-Suasion.*

Mládková, L. (2013). Leadership and Storytelling. *Procedia - Social and Behavioral Sciences.*

Lippman, P. C. (2020). Designing Collaborative Spaces for Schools. *THE Journal.*

DesignLab. (2020). Responsible Futuring. `https://www.utwente.nl/en/designlab/widgets/responsible-futuring-widgets/downloads/1-get-started/foundation-responsible-futuring.pdf`.

DesignLab. (2023). *DesignLab Facilities.* (University of Twente) Retrieved from `https://www.utwente.nl/en/designlab/facilities/`

Amabile, T. M. (1998). How to Kill Creativity. *The Magazine.*

Florida, R. (2002). The New American Dream. *Washington Monthly.*

DesignLab. (2023). *DesignLab UTwente Home page.* (University of Twente) Retrieved from `https://www.utwente.nl/en/designlab/`

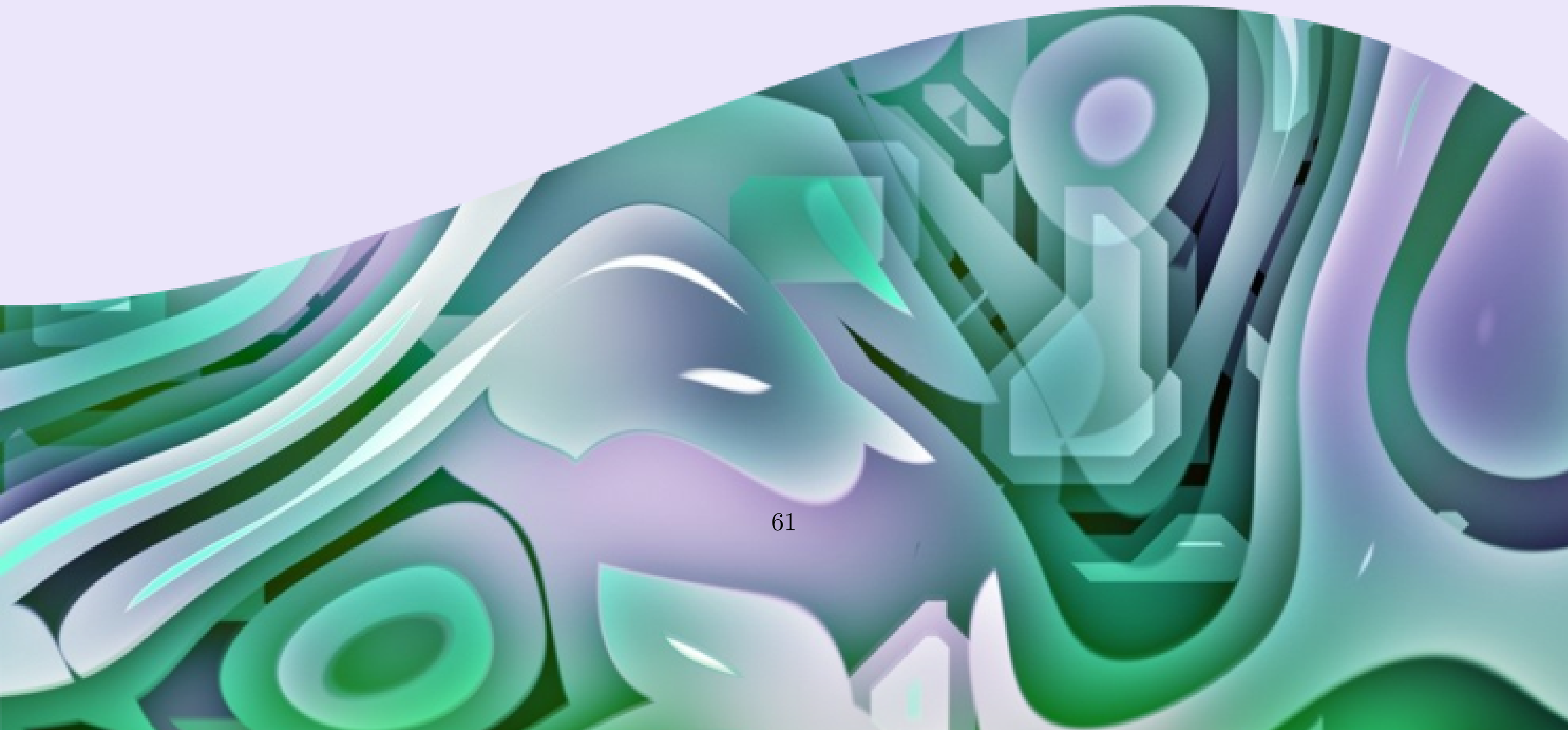
Bass, B. M., & Avolio, B. J. (1994). *Improving Organizational Effectiveness Through Transformational Leadership.*

Unveiled

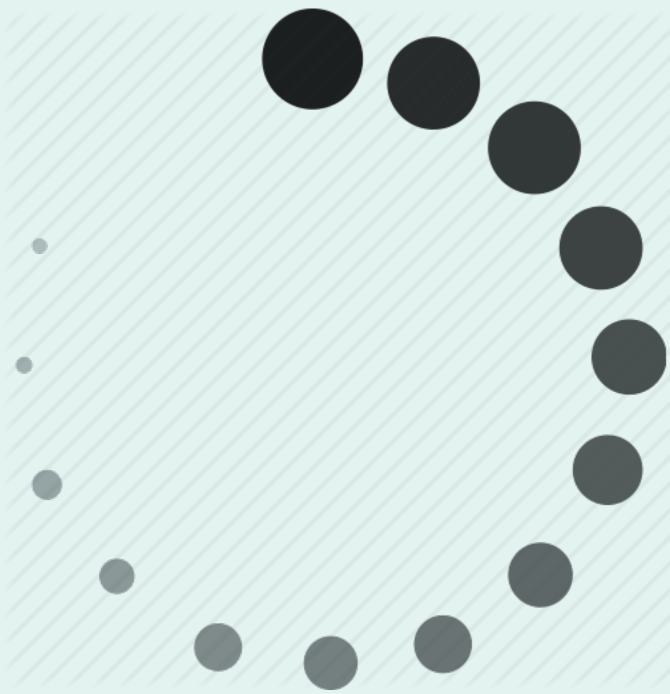
The Stories Behind the Façade

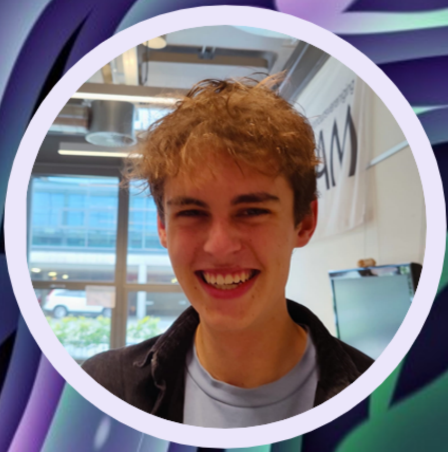
Mayar Abdalla

Project supervisor: Dr. P. Weritz



Mayar Abdalla is currently working on perfecting her change project. Stay tuned for more content!



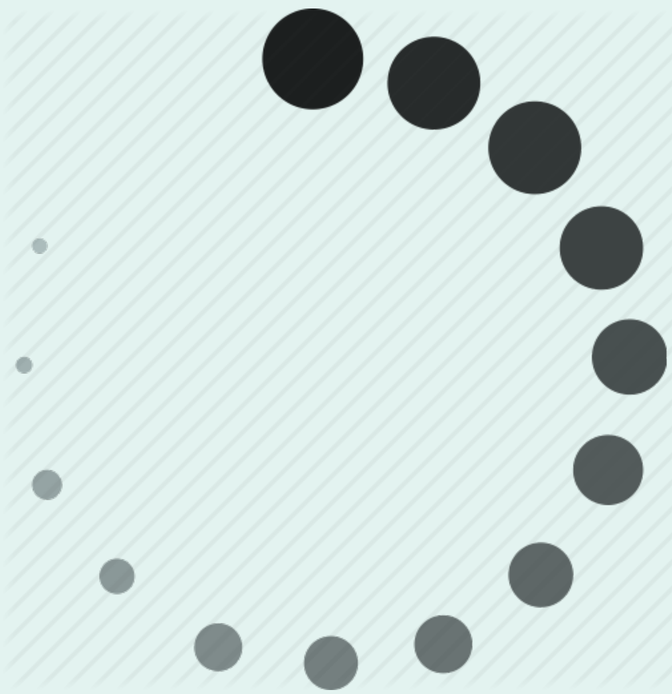


[Placeholder Title]

Nathan Jongejan

Project supervisor: Dr. T. van der Burg

Nathan Jongejan is currently working on perfecting his change project. Stay tuned for more content!



Culture and Care

The Effect of Interculturality in Doctor-Patient Interactions

Nina Bode

Project supervisor: Dr. A.H. Enklaar

Introduction

As a technical medicine student I have seen many Dutch students interact with other Dutch students. What is more rare in my experience is Dutch students interacting with international students. All studies to become a doctor have Dutch as their main language, and as a result only Dutch students can follow them.

It is a trend however, to move to different countries, and for internationals to come to the Netherlands. Consequently there will be people with a different cultural background, who end up in Dutch hospitals. For a doctor this might make it difficult. Research from W.J. Ferguson shows that cultural differences and language barriers can decrease the patient satisfaction (Ferguson, 2002).

In this research it is shown that minority patients are less likely to get enough information, and are less likely to help in the decision making process. As a result there is a lower patient satisfaction in minority patients, and that can result in a lower compliance, and overall a worse outcome for the health of the patient (Ferguson, 2002).

To find out how big of a problem it is, I asked nine international students about their experiences with Dutch healthcare, and about their interactions with Dutch doctors. This was done in an individual conversation in which they could share whatever they felt comfortable.

After this I started talking with twelve students from the University of Twente who study a medical study; ten from technical medicine, and two from biomedical engineering. Not one of them knew of the problems that the internationals talked about. They did not recognize the issues of international students, and ten of them did not have negative experiences themselves. The other two that did have negative experiences related it to the difficulty of planning something with the general practitioner on the UT campus. I also talked to these medical students about the issues that international students experience, and they did not realize that there was so little trust in the Dutch doctors, and what the consequences of the lack of communication can be.

Change goals

In my project I aim to bring awareness to the effect of unsatisfactory Intercultural communication in doctor-patient relationships in medical students.

I chose to have bringing awareness as my goal, because of the situation I saw before students were exposed to my project. As described in the introduction, none of the medical students that I spoke to knew about the lack of faith in doctors from internationals in the Netherlands. I see bringing awareness as a good first step, and hope the students can take this in their further education.

The choice for specifying on doctor-patient relationships was made because of the importance that these conversations hold on the patients experience with their doctor, and on their overall trust in the healthcare system (Mechanic, 1998).

I chose to have intercultural communication in general in the goal of this project. In research from Cargile et al (1996) a classification scheme was presented for intercultural training (Cargile & Giles, 2016). A general outline of culture-general and culture-specific training was given, and their outcomes were explained.

The culture-general training was most suited for bringing awareness to a certain situation. In this case to the differences in culture, that can come up during doctor-patient interactions, and that can hinder having a trusting relationship. The culture-specific training was more suitable for gaining knowledge or behavioural skills in particular situations. In this intervention that would mean the training would mostly help for conversations with patients with specific cultural backgrounds in specific situations.

Overall, the culture-general training is connected to bringing an understanding of the general dynamics involved in cross-cultural communication. As described in the introduction, the medical students I contacted did not know of the issues that international patients experienced. I found it important to focus on bringing them the awareness of the general situation of mistrust towards Dutch doctors, which is why I wanted to have my change intervention about general intercultural communication.

Target audience

As a target audience I chose to focus on medical students. For looking into intercultural communication in healthcare it is beneficial to focus on someone that (will) experience healthcare, as either a patient or a professional (nurse, doctor, etc).

I wanted to focus on the professional, since they are going to spend more time on doctor-patient interactions in their lives, compared to the regular person. As a result, bringing a change in the awareness of a professional would have a bigger impact on society.

The choice for wanting to influence students was because students are still in the process of learning, and are more open to new influences than seasoned professionals. Aside from that, I am also a student, so I am better able to relate to my target audience.

I tried to gain followers via the study association of Technical Medicine (S.V. Paradoks), via my own contacts in Technical Medicine at the University of Twente, and via the study associations for medicine in Nijmegen and Groningen.

Method

To achieve the goal I will start with gathering stories of international people in the Netherlands, and their experiences in Dutch healthcare. I did this by approaching people in my own circle and asking if they were willing to share their experiences. This was done in an informal environment over a cup of coffee or tea. This input came mainly from international students or alumni of the Honours programme at the University of Twente.

The approach to these informal settings is based on the principles of persuasion by Cialdini (Cialdini, 2016). First of all the first principle of reciprocity was used. By offering these people a cup of tea or coffee, they can feel obliged to help my in my project. Therefore they are more likely to share their experiences with me.

Secondly, the fourth principle of commitment and consistency was used. I first asked the students if they have ever been to a Dutch doctor. After that they are already invested in the conversation, and they are more likely to share what they really experienced, and how their doctors visit made them feel.

The last principle that was used is the fifth principle of liking. I believe I would have never heard their experiences if there was not a base level of trust and liking. During the conversations I paid attention to what they were saying with the active listening strategies. I also made an effort to create a common interest; improving the healthcare system in the Netherlands, which helped in creating a safe space to share experiences.

The active listening strategies I refer to were covered during the consultancy and coaching module, and described in the Harvard Business Review by Robin Abrahams and Boris Groysberg (Robin Abrahams, 2021). They split active listening up in cognitive, emotional, and behavioural listening. Cognitive listening is based on paying attention to the content of the story, and the nonverbal communication of the other person. I made sure to do this, also to understand their experience. Emotional listening is more directed towards sharing proper emotions with the other person. I made an effort to stay compassionate and calm when they shared their experience. Behavioural listening is about conveying comprehension. I did this for example by nodding when I understood their point. I also made sure to ask questions to clarify some unclear points. All of this helped to make the person telling their personal story feel safe enough to share. Of course I asked all of them if they would be okay with me using the knowledge I got from them as inspiration for a post. In creating the posts I made sure to use only a small part of their story in a fully anonymous way, so the posts cannot be related back to a real person.

Of the total nine students that I spoke, four told about their own experiences. The rest knew stories from their friends' experiences with Dutch doctors. Most of these stories were about negative experiences, in which they felt like their issue was not taken seriously, or in which they doubted the competence of the doctor. Only one person preferred the Dutch healthcare above the healthcare in their native country.

Apart from the informal conversations, I looked online for case studies, or stories from experts. I found a lot of general information, but not a lot specific to the healthcare in the Netherlands, or about specific intercultural interactions with a Dutch doctor. There are multiple scientific papers about interculturality in healthcare, some of which I found useful.

I also contacted six medical experts to ask if they had experienced a challenge regarding intercultural communication. Some of these experts are my previous teachers in Technical Medicine, some are doctors that share their experiences already on social media. To them I made sure to explain who I was, and what the goal was of my change project. Some of them were uninterested, some did want to see what I was doing but did not have any input, only two experts wanted to share a story of their experiences of an intercultural interaction.

Social media

After gathering all the stories, I created an Instagram account where I posted a very short version of my findings. I started with an introduction post of my goal. Then I followed up with a post about a scientific study on Intercultural relationships between doctors and patients. The next two posts are cases of the two main miscommunications between patients and Dutch doctors. The last post is about the term that can play a role in intercultural communication.

I am using social media (specifically Instagram) to achieve change in the awareness of Intercultural communication of medical students. Even though social media has its downsides, like not having contact with the everyone in the audience, I still chose to use it as a way to execute the plan for a few reasons.

First of all my target audience made up of medical students, and most students are active on Instagram; In my experience students use Instagram also more so than other social media platforms. So I figured that the best way to reach them is via Instagram.

Secondly, Instagram is a way to reach a bigger audience, than would otherwise have been possible. Since almost everyone uses it, also for extended periods of time per day, it is the ideal way to reach a large audience. Users often look at one post for only a few seconds at a time. This means that there might not be as much attention as one would hope to for example change behaviour, but for creating awareness less attention is necessary.

Furthermore, since I am making multiple posts, the followers will get exposed to a few 'reminders', which can aid their learning.

The posts

In total I posted 5 posts. The first post was more of an introduction to the page, and to my goal with it. I hoped to create a sense of openness from the viewer to the page.

The next post is about a scientific study of healthcare when the doctor and the patient have a different culture. The study highlights the main causes of miscommunications, as well as the consequences for the patient. I chose to focus on the consequences for the patient, because this helps in creating a sense of urgency for the viewer, and helps in their perception of future posts. In my post I added the reference to the study. With this viewers can check where I got my information from, which gives a more reliable impression of the account. It is also based on the third principle of Cialdini (Cialdini, 2016). The third principle is authority; people are more likely to follow people that have authority. In this case I am not an expert in intercultural communication, but I used the credibility of a scientific source to create a sense of trust from the viewer, not only for the one post, but also for the rest of the account.

In the next two posts I highlighted the stories of my friends experiences. This is to show examples of what international patients can see, and how it can happen that they have so little trust in the Dutch doctors.

The fifth post is about the phenomenon of ethnocentricity, which can be one of the causes for difficulties in intercultural communications.

Reaching target audience

After setting the account on public, anyone who want to can see the posts or follow the account. Only that does not happen if no one knows of it. I started off promoting the account by sharing the link on my own page, since I have many followers from my own study of technical medicine that are also in my target audience. Then I asked if there was a was for the study associations of Technical Medicine at the University of Twente, Medicine in Nijmegen, and Medicine in Groningen to promote my account. Unfortunately they would not do that, so I had to come up with another plan.

I started with promoting the account in the group chat of my study, which did gain me a lot of followers. Then I started individually contacting people from the list of followers of the accounts for the above named study associations. This action did help me get interaction with the account, and a few people did actually follow the account as well.

Results

In one month I managed to get 55 followers on the Instagram page. Most of these followers I do not recognise from my own circle of friends, so I do not know how many of the followers are actually students in medicine or technical medicine.

There were also a lot of accounts that did view my page, but did not follow in the end. In total I reached 185 accounts in one month.

To measure the effectiveness of the overall account I put out a questionnaire to the followers. I got ten answers in total. One of them was uncertain about their learnings, and the other nine are convinced that they did learn from the account. When asked an open question about their learnings the answers included "cultural differences can influence the perceived effectiveness of medical treatment", "I learned about the nuances in doctor/patient relationships", and "I became more aware of the impact of cultural differences".

Apart from the questionnaire I had contact with a medical student from Groningen. The feedback I got from them was mainly that they liked the initiative, and that they agreed with the relevance of the subject. She wanted to help the goal by promoting it on their end-of-the-year party, which is in two weeks.

Based on these results I think the intervention was a success. I managed to reach a lot of people. The results of the questionnaire show that awareness of intercultural differences in doctor-patient conversations was gained, at least in the group of followers.

Advice

The advice I would like to give to technical medicine students is to take the next step. My project had the goal of bringing awareness that there is room for improvement in the intercultural interactions in healthcare. Now that students see the issue, they can take the next step by actually learning about how to act in a conversation with an international patient. There is a lot of room to study specific cultures, and how they would prefer to experience healthcare.

Furthermore, it would be nice to help gain awareness in an even bigger group. For this the event in Groningen will definitely be helpful.

Sources

Critique, and a New Theoretical Framework. *Annals of the International Communication Association*, *19*(1), 385-404. https://doi.org/10.1080/23808985.1996.11678936

Cialdini, R. (2016). *Pre-Suasion: A revolutionary way to influence and persuade.* Simon & Schuster.

Ferguson, W. J., & Candib, L. M. (2002). Culture, language, and the doctor-patient relationship. *Family medicine*, *34*(5), 353361. https://pubmed.ncbi.nlm.nih.gov/12038717/

Mechanic, D. (1998). The functions and limitations of trust in the provision of medical care. J *Health Polit Policy Law*, *23*(4), 661-686. https://doi.org/10.1215/03616878-23-4-661

Robin Abrahams, B. G. (2021). *How to Become a Better Listener.* Retrieved 3-6-2023 from https://hbr.org/2021/12/how-to-become-a-better-listener

Developing Structure within a Committee to Increase Efficacy

Noah Verheijen

Project supervisor: Dr. A.H. Enklaar

Introduction

After starting my study of Technical Computer science at the University of Twente, I immediately searched for activities that would allow me to learn and develop myself. After some time, I heard about the honours programme, and I considered the track of Processes of Change especially intriguing as it would allow me to develop myself in areas outside of my comfort zone. The honours track would also help expand my knowledge of the structures of organisations and how to run them. By joining, I would be able to push myself since several subjects covered are not in my main study.

With this newfound drive for self-improvement and expanding my knowledge, I applied for a board position at our honours association at the University of Twente, H.V. Ockham. When deciding on the exact position I would follow took some time, I considered the position of Treasurer and Commissioner of External Affairs as the most challenging, eventually landing on the latter. The difficulty in the selection is due to the significance of selecting either position, as the association relies on the Treasurer to properly do the bookkeeping and External Affairs to ensure external relations and sponsorship. Making me responsible for the acquisition committee, referred to henceforth as AcquisiCie or the committee. To guarantee the committee's success, I integrated my existing knowledge with the insights acquired from my board position and the Processes of Change track. Additionally, I collaborated closely with my Co-External affairs to establish a robust framework for the upcoming year. We were aware of the possibility of not having a successor for my position, which is why our main priority was to foster a foundation and encourage a diligent work ethic within AcquisiCie.

As a result, the final Honours project has two main objectives: establishing an efficient committee for the upcoming year and fostering the development of my leadership skills. Which causes the question to arise, why is it crucial to ensure the efficacy of the committee? Where the short answer is to achieve external income. This goal has gained greater significance over the past month as it has become evident to me and the rest of the board the lack of a successor to my position. This situation would decrease the chances of acquiring external income, as no one else has the additional time required alongside their position.

In addition to the external income, part of the goal is to shape a clearer vision of the committee to encourage an increase of independence amongst the members attempting to follow the 'More Than a Degree' *(More Than a Degree, 2022)* slogan of the university to encourage more activism within the committee. To ensure the committee moves towards this goal, I will work with the AcquisiCie members and candidate board members of the Honours Association Ockham. Together we will examine the current state and discuss effective means of improvement.

Change goals

To figure out the exact change goals of the project a meeting was organised with the target group, members of the AcquiCie, and members of the Candidate Board with the current Board taking a facilitator role. During this meeting, several goals were defined. The first goal entailed clarifying the committee's purpose and functions to ensure a better understanding amongst both committee members and general association members. The second goal involved establishing more well-defined roles within the committee, allowing members to specialise in specific areas and enticing new members to join by offering a selection of roles instead of only a committee description. The later goal was also pushed to decentralise the knowledge within the committee to ensure the committee's survival. As the current board and older members of the association have seen that this has been an issue when those key central members leave the committee resulting in most of the knowledge being lost.

This entails collaborating with the Candidate Board to help them incorporate the goals and purpose of AquisiCie into their policy plan, as well as working with AcquisiCie to define the new roles that will allow for knowledge decentralisation. The final goal is to have a clear description of the committee's purpose and a well-defined list of roles within it. This will enable greater self-management, promote effective communication between committee members, and enhance overall effectiveness by allowing members to specialise in their respective areas (Bunderson & Boumgarden, 2010).

Change approach

When initially starting this project, it was only plausible to schedule two workshops within the time constraint each of which would take around 45 minutes to 1 hour each. For these workshops, the members of the committee, the candidate board and the current board responsible were invited to join. As I had priorly in Processes of Change researched into the model the workshops will mainly be based on the Kaizen method which consists of six steps *(Toyota Kaizen Methods, 2011)*. Next to the workshops, there will be a few one on one conversations with the candidate board regarding the implementation of the plan in connection to their vision.

Concerning my behaviour during the workshops, I decided that during the first workshop, it would be best for me to take a step back into a facilitator role with finding the pressing problem to avoid bias. Also being beneficial to ensure that everyone present can have their voice heard without being overshadowed by one person. The difference in the second workshop would be that I would take the facilitator role whilst also participating more frequently in discussions with my thoughts. The reasoning for this is to enhance team participation in decision-making to create a greater sense of belonging and to allow for a feeling of group interconnectedness. Which would allow the members of the committee to have an increased motivation for participation and commitment to the committee (Valverde, 2021). Meaning I would make most if not all of the major decision-making up to the participants with minor inputs to ensure my connection to the group and to ensure the group doesn't go off track.

Kaizen model

The Kaizen approach consists of the following 6 main steps that form a cycle of continuous improvement. The number of steps do differ depending on the resource you use but for the intents and purposes of this project, these 6 were chosen with some alterations made to fit the current state and end goal of the project.

Stage One: Discover the Improvement Potential

Within this stage, a multitude of questions need to be answered to discover a point of improvement or issue at hand. (Questions were created to simplify the process of the book)

- What is the problem/point of improvement?
- Why should this be improved/ is it a problem?

- How much time would it take to implement an improvement /fix the problem?
- How necessary is it to improve the issue or problem at this time?
- How difficult is it to solve or improve the issue?

Stage Two: Analyse the Current Methods

Due to the lack of initial structure, this stage will be simplified to focus on adding structure by defining roles and each of their purposes using the 5W 1H & ECRS framework seen in Figure 14 (Toyota Kaizen Methods, 2011)(Ram, 2018). This methodology allows us to pinpoint the current approaches used to solve the issues discussed in stage one. Other points of analysis will be figured out together with the members of the committee and candidate board members and assessed later.

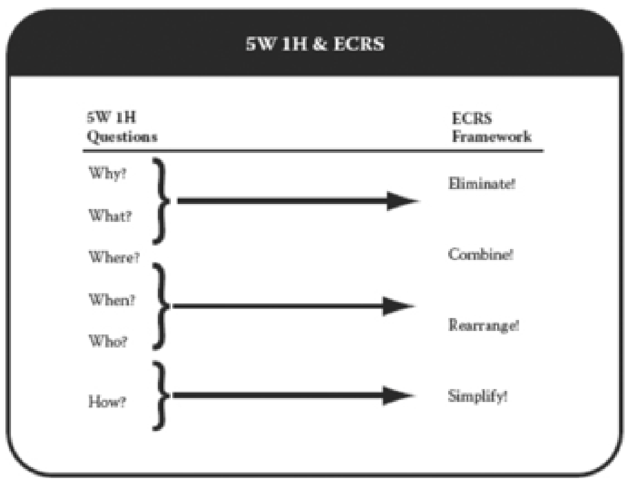


Figure 14: Toyota Kaizen Methods, 2011, Chapter 5

Stage Three: Generate Original Ideas

Stage three will occur in the second workshop and hence the first two stages have been discussed already. The third stage will be divided into multiple sections of idea creation after stating any idea is welcome, in the following order:

- *Individual Idea creation*
  - Two minutes of individual brainstorming where each participant attempts to create as many ideas as possible on either a sheet of paper. This is done in complete silence. (this is based on the discussions held in the first workshop)
- *Paired idea discussion*
  - The participants pair up together to share their ideas to gather a different perspective or discover similarities by grouping similar ideas. Ranking their top 10 ideas.

- *Group sharing session*
  - The pairs one by one share their top 10 ideas with the group once again grouping them together
- *Ranking ideas*
  - Work together on a collective rank of the top 10 of the shared Ideas
- *Five-minute Break*
- *Revisit to Rankings*
  - Discuss whether or not the group still agrees with the rankings or not.

Stage Four: Develop an Implementation Plan

Based on the ideas and concepts thought of in the generation idea phase a plan will be constructed together with the participants to ensure the implementation of the ideas. Where the ideas will be separated into two categories, the first of which is where the members of the committee can immediately implement the idea and the second one is where the candidate board is required for the implementation such as to be included within their policy.

Stage Five: Implement the Plan

The implementation of the plan discussed in stage four will primarily be done together with the candidate board where the plan and ideas from the prior stages will be implemented into the sequence of operations of the committee and the committee itself in regards to their vision for the committee.

The extent to which the committee has the autonomy to implement new ideas without a review from the candidate board will be discussed and evaluated together with the candidate board.

Stage Six: Evaluate the New Method

In this last stage, the results of the new change/changes will be analysed and compared to before the change to see if improvement has been made and whether or not there are other points of improvement. This evaluation session shall continue in the coming year either once every two meetings or once every four meetings (meetings are bi-weekly) but this is to be discussed together with the candidate board.

The sixth stage will not occur within the actual change project. The decision was made due to the time constraint on the project and to see the actual change in the behaviour of participants could take a few months depending on the size of the change. Hence for a complete evaluation on whether or not shifting to this model has improved efficacy you would need to look at the end of the next academic year.

The six stages above are based on (Toyota Kaizen Methods, 2011)

Results

Workshop 1

The first workshop was structured in a way to discover the problems and identify the current method of dealing with that issue, as described by the first two stages in the change approach kaizen model section. The meeting started by having the participants become familiar with one another if they have not done so yet to create a friendlier atmosphere. After everyone was well acquainted I invited all the participants to discuss their initial perspective on the purposes of the committee and contrast the perspective to their experience so far. Through this initial question round, every participant was able to perceive all the different perspectives allowing for some issues the committee faces to be formed. The first of the brought-up issues was the general lack of clarity in the vision of the committee and the second of which is the lack of members and task division amongst members.

The participants had some issues breaking down the first issue of lack of clarity, due to each participant only having a general idea of the committee and not being fully certain about the precise purpose of the committee. Because of this, I needed to intervene a little bit to help them move along by mentioning some of the intentions my Board had stated for the committee at the start of the year. Through this the conversation was able to continue leading to the effects this issue caused, mainly being not motivating members enough and a general sense of not being certain about what they should be doing.

The second issue was closely tied to the first as it also pushed for more structure within the committee itself by the addition of group roles. To gain additional insight into how many roles could be made a short brainstorming session was held to discuss the different types of tasks the committee is responsible for. The main tasks that were brought up were: contracts, promotional material, price upkeep/document upkeep, chair, and general acquisition. These tasks could be then divided into roles which the participants will discuss in further detail in the second workshop.

This already answers the next question, how long would it take to implement? The second issue can be implemented near immediately at the start of the next academic year when it would take the longest to refine the actual responsibilities for the roles themselves. The first issue would take much longer to fully implement as it is part of the general committee vision which would take some time to refine and would be an integral part of the improvement cycle being implemented in the committee. Moving to the necessity of improving these issues at the time is to ensure the effectiveness of the committee and avoid issues over the past year. Such issues include disorganisation within the committee and a general lack of motivation in participation by committee members. Hence it is integral to implement improvements to these two issues as soon as possible to help mitigate the issues faced this year. The last point discussed together was the level of autonomy the committee will have which would be discussed in more detail within the one-on-one conversations with the candidate board. The difficulty of implementation wholly relies on the motivation of both the members of the committee and the candidate board to instil and participate in the change

After finalising the initial stage I moved on to the second stage using the 5W 1H & ECRS model to help brainstorm how the committee is currently functioning. As both of the issues discussed are tied together in the brainstorming session, brushed over earlier, the general tasks are meant for the committee. Breaking down why the committee had those tasks and whether or not it connects to the value we are attempting to move towards. One such responsibility was the creation of LinkedIn posts and whether or not this should be eliminated from the committee's list of responsibilities or not to help focus the committee. The session ended up with:

- The priorly roles: contracts, promotional material, price upkeep/document upkeep, chair, and general acquisition. Details of which will be discussed in more detail in the second workshop
- Shifting the committee to fully focus on the general acquisition of added value to the association from the general acquisition of money. Where the shifting of the creation of LinkedIn posts was still debated.

One-on-one conversations 1

The one-on-one conversations held with the candidate board do not in particular cover any of the stages of the kaizen mentioned in the change approach and are used more as a reflection and extension of what has been discussed on this point. The one-on-one consisted of multiple meetings in different forms, one-on-one with the candidate board member responsible for the committee next year, discussions with multiple of the candidate board members and a group discussion together with both the current board and the candidate board.

With one-on-one conversations with the candidate board member responsible for the committee in the upcoming year, the discussion points were: to expand on the prior workshop, what is still vague to them, and to raise questions for the candidate board to discuss amongst themselves. Although anything would be able to be discussed, the main point we talked about was the vision of the committee and the responsibilities it would hold. Most of which was a revision of the initial workshop with a few additives here and there. First of which was a discussion point for the candidate board being whether or not they would have trust in individual committee members to be able to represent the association appropriately to external organisations. Which will be brought up again later. The second point is the construction of a form of initialization document for new committee members and maybe a form of shadowing of older committee members. The last point we talked about was how actively involved the board and in particular the board responsible will be in the committee itself which added back to the initial point of how much trust can they put into the committee if they are not actively involved.

These points were brought into both the conversations with multiple of the candidate board members and the conversations with the board and candidate board. These took place after the one-on-one conversations meaning some of these points had been resolved. The decision made by the candidate board seemed to push towards putting full trust in the committee in representing the association and that there would be little involvement of the candidate board. Which partially answers the question discussed in workshop 1 about the level of autonomy the committee will have. Within these discussions, the vision the candidate board has for the committee was focused on adding extra value to the association focusing mainly on educational value. Overall the points discussed in the conversations will be brought up in the second workshop to help implement the changes at a quicker pace.

Workshop 2

The second workshop focused on stage three and four stated in the change approach, analysing the issue brought up in the first workshop to come up with solutions and how they should be implemented. Although all parties were invited, within this meeting only the committee members of the AcquisiCie were present.

The meeting started off with me giving a short recap of what was discussed in the last workshop and what was discussed one-on-one with the candidate board specifying the issue at hand. When the recap was done I started the third stage with the 5 minute individual brainstorm session. Unfortunately not all committee members were able to attend the meeting and hence I needed to alter the third stage and skip the paired idea discussion. This most likely led to less ideas being developed as the participants were only able to discuss their ideas with the group. Due to the alteration in the plans for stage three I decided to also not push for the rankings and work on developing the ideas we had in more detail and extending the break from five minutes to after the committee meeting.

The main ideas that were brought up were: questions for the candidate board to specify certain details, shifting our goal from individual to committee based, and policies for the upcoming year. Throughout the discussion the fourth stage was also discussed in some aspects, where the ideas were separated already in questions for the candidate board (long term ideas), and ideas the committee can implement on the spot or at least by the next meeting held. However due to the fact not all members of the committee were present at the time and some of the ideas were not as developed as they could be and because of the lack of time; the actual implementation of most of the ideas will be moved to the start of next year together with the candidate board and the committee. The point of the intervention was not only to implement the changes discussed, but also to ensure the members get put on the same page.

One-on-one conversations 2

This second one-on-one conversation was mainly used to update the candidate board about what was discussed in the second workshop and to bring forth points that needed to be discussed or fleshed out.

Advice

After going through this process with both the committee and the candidate board I got a decent insight on the changes that need to be made and how they should be approached. However that being said there are still a few things that need to be done to ensure these changes are implemented and also stay. Firstly the actual ideas brought up by the committee need to be worked out in a bit more detail over the summer which I will do. Secondly the candidate board should clarify the questions the committee has which I will check in on after or during the summer by having a discussion with them. Where lastly and most importantly to ensure that the changes implemented remain it was decided to hold an evaluation meeting at the end/start of each module where the goal for the upcoming module is set and similar steps as the ones used in this change project will be used again. Overall, the vast majority of changes will be seen over a larger period of time helped by the future evaluation meetings caused by both the time constraints of the project and the time it takes for behavioural changes to take into effect.

Learning Experience

Over the past one and a half years, I have learned a great deal about myself. The programme has taught me how to instil changes in myself and others. Because of this, I was able to develop both on a personal and professional level. To further help myself develop, I chose to work on my leadership skills in both the coaching session and the project. Due to this, I have learned to gain far greater respect and enjoyment for taking a leadership position within a group. The coaching session helped me reflect upon what I did within the project, allowing me to improve my leadership skills. Through this process, I believe my leadership skills have become more direct and concise than they used to be.

I am happy to have been able to do this project, as it allowed me to delve into the actual implementation of theory into reality and the road bumps it may cause. The project has allowed me to understand the difficulties of taking the leadership role and how to improvise aspects of a plan on the fly when needed. This led to me changing the way I approach leadership in the future allowing me to be more stern and flexible at the same time.

Overall I am grateful to all my classmates and teachers for this wonderful experience, as none of this would've been possible without the discussion held within and outside of class.

Reference List

More Than A Degree. (2022). Student Union. https://su.utwente.nl/word-actief/mtad/morethanadegree/more-than-a-degree/

Bunderson, J. S., & Boumgarden, P. A. (2010). Structure and Learning in Self-Managed Teams: Why "Bureaucratic" Teams Can Be Better Learners. *Organization Science*, *21*(3), 609624. https://doi.org/10.1287/orsc.1090.0483

Ram, J. (2018, June 15). 5ws 1h: *A technique to improve project management efficiencies.* IPMA International Project Management Association. https://ipma.world/5ws-1h-a-technique-to-improve-project-management-efficiencies/

Toyota Kaizen Methods. (2011). Google Books. https://books.google.nl/books?hl=en&lr=&id=RS4nsJGsgmEC&oi=fnd&pg=PP1&dq=kaizen+model+6+steps&ots=REbaTwIA-7&sig=gZMZ4vz5kuf1p5bpQWapodwGmN4&redir_esc=y#v=onepage&q=kaizen%20model%206%20steps&f=false

Valverde, M. (2021). Participative Decision Making (PDM). *encyclopedia.pub.* https://encyclopedia.pub/entry/12828

Phishing at the UT

Reducing the victimisation of students in regards to their emails

Omar Mansour

Project supervisor: Dr. P. Weritz

Introduction

Phishing emails Digitalization is an important aspect of modern society which is further developed and expanded over time. Broad usage of modern technology which contains important personal data of citizens, requires a deep understanding of their security and integrity such that this important and potentially damaging data is not compromised. Currently, technology is advanced enough to withstand any unauthorised attack from the outside, however as humans are still in control of that technology, exploitation of administrative humans through deceit or other fraud makes information technology (IT) systems still vulnerable. Alkhalil, Hewage, Nawaf, and Khan (2021) describe the prevalent issue of phishing emails, which have been increasingly used as a means to gain unauthorized access to networks and compromise sensitive information. According to a study of Keepnet (2021) around 91% of cyber attacks are initiated by email, which makes phishing one of the biggest dangers regarding regular IT security
A notable incident that highlights the urgency for change is the phishing email campaign conducted by a project group called PASSWORD from the University of Twente (2022). The Privacy and Security Awareness on Workplace, Office, and Remote Data project group, in short PASSWORD, gives out valuable information regarding cybercrimes and correct behaviour with personal information at the workspace which is communicated via articles and online workshops. The campaign orchestrated by the PASSWORD project group demonstrated the vulnerability of the university community, with approximately 25% students and 19% staff members falling victim to a carefully crafted spear phishing email. This highlights the critical need to raise awareness and develop good security habits among students to prevent them from falling prey to more damaging phishing attacks.

Target audience The target audience of this change project primarily comprises students who, due to their varying levels of awareness and sensitivity, may inadvertently become victims of phishing emails. Even though Alkhalil et al. (2021) describes college students as more resilient to phishing emails than other demographics, the statics show that a lot of students still fall victim to phishing attacks which makes them a good target audience due to their willingness to change more easily and adapt their IT habits in comparison to older more experienced people. It is crucial to address this target group comprehensively and provide them with the necessary knowledge and skills to identify and thwart phishing attempts.

To address these challenges, a change intervention, commonly referred to as a social engineering intervention in literature, was devised. By understanding the general situation of data privacy and security concerns, particularly concerning the significant impact of the phishing email campaign conducted by the PASSWORD group, the project aims to devise a tailored approach that caters to the specific needs of the student community. Through targeted interventions and education, it strives to empower students to recognize and mitigate the risks posed by phishing emails, ultimately fostering a more secure online environment for the entire university community.

Change Goals

Explanation of important tools The modern internet is built upon a couple of important key concepts which can be used by more experienced users to deceive or manipulate newer more ignorant users. One such key concept is the Uniform Resource Locators (URLs) which is the mechanism used by common browsers such as Firefox or Google Chrome to retrieve a published resource like the online encyclopedia Wikipedia or any other website (MDN contributors, 2023). Another key concept that is utilized when verifying that the user is a human instead of a programmed roboter (or bot) is the Short Message Service (SMS) which is a standardized protocol with which mobile devices exchange short messages. Those two key concepts are always involved in literature dissections of social engineering attacks and interventions.

Motivation behind goals Extensive research was conducted in the past regarding the effectiveness of social engineering and statistical data showing what aspects or structures have the most long-lasting effect on any particular participant. The meta-analysis conducted by Bullee and Junger (2020) suggests that focusing on specific aspects of phishing emails, such as detecting fake website URLs, fake authentication SMS, or other types of SMS, is the most effective method for increasing long-term awareness. Considering the UT login procedure with authentication apps and the more widespread and regular usage of email, the aspect of SMS phishing was not considered for this project.

In particular, Sheng, Holbrook, Kumaraguru, Cranor, and Downs (2010) report of an embedded training approach which by focusing on detecting shortened URLs reduced the victim rate of phishing attempts by 40%, was taken as a great inspiration for focusing only on the aspect of identifying shortened URLs. Embedded training as well as other user security educational methods will be explored in more detail later when deriving the motivation behind the change approach.

In line with the aforementioned findings, this project places a particular emphasis on detecting the validity of shortened or concealed URLs, which are often used to redirect users to fraudulent websites aimed at stealing their credentials. The aim is to educate students and equip them with the necessary skills to identify and ignore phishing emails throughout the project.

The overarching goal of this project is to witness a group of students progressively enhance their ability to detect and disregard phishing emails throughout the project duration of 6 to 8 weeks and make unconvinced students who view themselves as undeceivable understand, that they may also be in danger of phishing attacks.

Change approach

The change approach encompasses the following phases:

Phase 1: Initial Questionnaire - Gathering student input: A small questionnaire will be administered to willing participants, allowing them to provide feedback and rate their experiences with phishing emails. This phase aims to gather insights and understand the current level of awareness among students.

Phase 2: Small Seminar - Building awareness and skills: A selected group of students will be invited to participate in a small, one-hour-long, seminar. This seminar will simulate real-life phishing scenarios encountered in day-to-day activities, as well as unexpected events that will be scripted throughout the sessions. By providing interactive experiences, the project seeks to increase students' awareness and equip them with the necessary skills and toolsets to detect and respond to phishing attempts.

Phase 3: Follow-up Questionnaire - Evaluating the change process: Towards the end of the project, a follow-up questionnaire will be administered to the participating students. This questionnaire will allow students to rate their experiences and provide feedback on the effectiveness of the seminars and their overall progress in detecting and ignoring phishing emails. The feedback obtained will inform future improvements and provide insights into the success of the change intervention.

Detailed description of initial questionnaire There are three stages of the initial questionnaire which fulfil different purposes. The first part is about collecting some identifying data like the academic field the person is operating in, their gender and age. It is also about getting a fundamental view of that person's experience and baseline knowledge about phishing.
Depending on the answers of the user to the question about their experiences with phishing, they are either redirected to the expert or standard continuation. The expert continuation goes more in-depth into the specific aspects that made them either fell victim to a phishing attack they indicated or how much they would rate the different aspects an example phishing email shows in terms of their persuasiveness. On the other hand, is the standard continuation that acts more as a priming tool and which trains the participant to identify possible characteristics that a phishing email may have. This is done to prime the less experienced students and make them understand what a phishing email is by seeing one first-hand.
Afterwards, all users will be redirected to the final part of the questionnaire to indicate what type of characteristics the workshop should have to keep them interested and motivated to follow through with the workshop. Some questions like what type of content format is preferred were asked due to the relevance of keeping the audiences attention and to confirm the results obtained by Abawajy (2014) that a more video and game-based approach to delivering security information is preferred by participants.

Approach to constructing the change intervention Change interventions can vary greatly in effectiveness. Especially when the intervention centres around generally disregarded subjects such as data privacy, a lot of different aspects have to be derived in order to not only communicate the content and advice the participants correctly but also to keep the attention of all participants centred around the core messages of the intervention. As such a lot of inspiration was taken from already conducted social interventions that are mentioned in the literature as well as examples of attention-grabbing that were introduced in several guest lectures during the POC course.

Detailed description of the seminar Social engineering is mostly about persuading the victim to comply with their attempts at stealing their information. Various principles are used by the attacker which is presented in Bullée, Montoya, Pieters, Junger, and Hartel (2018) dissection of successful social engineering attacks. Thus the best way to approach the problem of raising awareness is to first identify which of the previously mentioned persuasion principles influence the students the most such that a good-fitting seminar can be created.

Bullée et al. (2018) and Ferreira and Lenzini (2015) identify and use Cialdini (2009) derived principles of persuasion to create a list of possible factors that allow an attacker to successfully create a phishing attack. Ferreira and Lenzini (2015) calls those principles the five principles of persuasion in social engineering and tries to quantify those principles in terms of certain characteristics exhibited by common phishing emails. The following principles seem to have the biggest influence:

1. Authority, which causes a from society conditioned response of cooperation in most people.
2. Social proof, which causes individuals to follow an in-group to feel more secure in their decision.
3. Liking, where the favourability or similarity of one person causes a like-minded thinking process.
4. Commitment, where the attempt to be consistent and fulfil any prior promises causes an automatic response to repay or follow up the promise.
5. Distraction and Scarcity, where the limited availability enhances the emotional state of people and reduces the amount of logical decision-making they can make.

Bullée et al. (2018) explains that the most used principle is authority whose usage is overwhelmingly higher than the other principles. The follow-up is the liking as well as the commitment principle. Furthermore, the number of attack steps which represent the number of single interactions between two individuals, decreases dramatically the more principles are simultaneously used. Ferreira and Lenzini (2015) elaborates that the most paired principles are authority and distraction while depending on the context of the phishing mail, f.e. data theft, certain textual and graphical elements appear more frequently. For data theft, recognisable logos of big companies appear very frequently while for fraud the contact details of the supposed companies and tight deadlines are the centerpiece elements.
Conclusively it seems that authority and likeability are two of the most important principles to take into account when dealing with phishing mail. For students, there are only a

few key authority figures that can be easily imitated. Study-specific committee members like the examination board or (assistant) professors can be one of those figures while study advisers and other notable key personnel like the programme director/coordinator could also potentially be imitated if there is enough background data that can be used. Likeable figures that can be imitated are teaching assistants (or sometimes called learning assistants), other university staff like service desk employees, mentors or coaches of more extracurricular activities.

There is still the issue of how to address those persuasion principles and make the target audience aware of them in an effective and long-lasting way. To do this several different training methods are used. The most important and relevant techniques are embedded, contextual, web-based and interactive training (Sheng et al.,2010).

Embedded training describes a particular way of making the participants aware of any cybersecurity issues by simulating their day-to-day usage of their email inbox and sending them some training only if they fell victim to regularly sending phishing emails. Contextual training also sends out simulated phishing emails, however instead of only informing victims, all participating users are later given materials regarding that particular simulated attack. Web-based training sends out educational material directly to interested users, while interactive training uses various games to educate people. Sheng et al. (2007) designed one such game called Anti-Phishing Phil which teaches any player good security habits to avoid any phishing attacks.

Due to the limitations of this project like the duration and scope, very time-intensive techniques like the ones mentioned above cannot be directly used in their pure form. Instead, it is attempted to take common actions between those methods, like sending out simulated attacks and distributing educational material, and make a new method which incorporates the main concepts of all methods.

To send out such a simulated attack a subset of phishing emails, so-called spear phishing emails, are used to initiate the social engineering intervention. Eftimie, Moinescu, and Rcuciu (2022) describes spear phishing as a method of increasing the "likelihood of manipulating the target to open a doorway to attack". This is done in multiple steps where the attacker gathers private information about the victim to then create a for the person relevant phishing email. As the effectiveness of a spear phishing email is higher than a general mass sent phishing email according to Caputo, Pfleeger, Freeman, and Johnson (2014), it would make more sense to use a more specified phishing type considering the smaller sample size of participants that can be effectively reached in the duration of the project.

Considering the aspect of making the seminar more game or video-like to increase the effectiveness of the intervention as described by y Abawajy (2014) it was decided to take a close look at the guest lecture given by Hanneke Scholten in the processes of change honours module 3, change at the individual level. Scholten (2022) presents a design worksheet with which one can use the Games for Emotional and Mental Health (GEMH) lab framework to create game mechanics that use evidence-based techniques to cause psychological change. While the GEMH lab mostly deals with very serious mental health issues like aggressive behavioural disorders and other mental disorders, this framework can still present a nice methodology to derive important game-like mechanics that can be utilized during the seminar. The framework can be seen in Table 1.

Using the game mechanics derived from the GEMH framework, a general proposal of the seminar structure can be made. The seminar will start with a 15-minute introduction which welcomes the participants and introduces the agenda for the workshop. Afterwards, the

GEMH DESIGN WORKSHEET by Scholten (2022)			
Outcome	**Mechanisms**	**Techniques**	**Game Mechanics**
Desired Outcome?	What do we want to enhance/decrease?	What (evidence-based) techniques can we use?	How do we translate this into game mechanics?
1. Increase in security awareness 2. Decrease in victimisation of phishing emails	1. Increase general risk awareness about phishing emails 2. Decrease bad internet habits (f.e. automatically clicking on any visible link) 3. Increase usage of standard cybersecurity procedures (f.e. checking sender's email address)	1. Roleplaying 2. Contextual training 3. Embedded training 4. Web-based training	1. Examples of (non) phishing emails are shown 2. The participants guess whether the examples are (non) phishing emails 3. Every identifying characteristic that is discovered gives points 4. Scoreboard ranks players according to their score

Table 2:

participants take part in a 5-minute grouping phase, as sharing experiences of the workshop with other people will make common insights appear more frequently according to Abawajy (2014). A 30-minute-long game will then be played where the groups get different emails. Some emails exhibit typical/uncommon phishing characteristics and some will be authentic emails. For each correct classification, points will be assigned and for wrong predictions, points will be deducted. There are 3 emails per round that have to be classified, accumulating to a total of 3 rounds and 9 emails. After each round, the emails of that round are discussed together in a general assembly of all groups. In this discussion tips and other interesting facts of phishing emails will be introduced to make a connection between the shown emails and the real-life use cases. The last 10 minutes act as a closure where the results of the workshop are reflected and a final questionnaire is introduced as a feedback form.

Detailed description of the final questionnaire The final questionnaire acts as the measuring tool to identify whether the participants have indeed increased their awareness of cyber vulnerabilities like phishing emails, and to see whether the participants still retained some of their knowledge from the workshop.

Match to the change goals By utilising a more interactive game-based approach, both more experienced students as well as those who do not yet view phishing as a problem get practical training with the main problem of phishing while having a more motivating and bonding experience. This means that the main goals of convincing students to take notice of phishing and improving their success in avoiding phishing are addressed.

Results

Most participants of the workshop were directly asked to participate by the organiser. This means that almost all students have the same academic background while specialising in different fields. Due to the nature of the academic background as an Advanced Technology student, this sample group while having the same study can be considered as being varied enough to show different characteristics in terms of their security awareness.

The initial questionnaire shows that out of 10 participants, only 4 are experienced with phishing emails, while two of those participants were victimised. One of those victims described the phishing email they fell victim to as being "send at the right time" when a lot of changes were happening in their personal life thus making them automatically click any link they deemed urgent without checking the whole email. Those "experts" then classified the body text of an email to be the most influencing part of a phishing email. In contrast to that, the 6 "standard" participants all reported a low chance of having missed a phishing email in their inboxes. Furthermore are those users more sensitive to grammatical errors and the general title of an email rather than the sender's address. All participants preferred a more sarcastic and informal workshop than a formal one and wanted to have a more game-like experience with graphical elements. The decision on the tip given was more divided with 4 participants being undecided, while 3 others rejected the idea of giving tips and 3 accepting it.

After conducting the workshop several main observations could be made. One such observation was that the participants were very willing to discuss all the different details that they noticed when seeing the phishing email as well as the authentic emails. They also discussed how certain external environmental factors make certain phishing emails more convincing and logical. An example that was brought up was getting an email about a missing package on certain holidays like Christmas. All participants managed to discover common phishing email topics like lottery winnings, sudden "rediscovered" childhood friends and fake Amazon invoices. A minority of participants mislabelled some authentic emails as phishing due to errors in the grammatical formulation of the text body. Most participants however failed to uncover fake emails based on canvas notifications. Especially when it came to grade publishing notifications almost all participants would have fallen victim to a possible phishing attack. After a discussion regarding this particular spear phishing email, it was discovered that due to the regularity of receiving those notifications and the perceived importance of discovering the grade as early as possible, most participants directly click the link which redirects them to their grade page. After encountering the first "fake" canvas announcement email, a noticeable increase in reading time could be noted. When before most participants gave their answers in one to two minutes, now they took at least 3 minutes. This matches with Caputo et al. (2014) discovery that the most effective type of phishing is spear phishing. After getting victimised by an email, the awareness and strictness of the participants increased, however, it could be seen that participants that had been victimised before the beginning of the intervention did not experience any significant change which matches with Bullee and Junger (2020) discovery of low effectiveness to improving the awareness of pre victimised participants. At the end of the seminar, the following conclusions were concluded by the participants:

1. Instead of focusing first on any given text body link, it is better to have a top-down prioritisation of the email.
2. By using a three-second rule and hovering over any clickable link to scrutinising the whole address to which one is redirected, most "emotional" urges of mindlessly clicking links can be avoided
3. When clicking on a link that cannot be directly avoided usage of tools such as VirusTotal (n.d.) can be used to make sure that the website can be "safely" entered
4. Visiting websites where confidential data is requested should have valid certificates

The final questionnaire showed that all participants found the workshop at least partly entertaining by only giving ratings higher or equal to 3 out of 5 entertainment points. Most rated the presented phishing facts as being Very Good, while the tips were more negatively received. The lowest feedback given to the tips was that they were fair but not really helpful as they were not surprising to the participants. The emails were highly rated with no one perceiving the emails as unsatisfactory. The learning experience was highly rated as well with participants being especially enlightened by the discussions conducted after each round and the spear phishing emails. Improvement was mostly centred around making the tips broader and keeping them practical with some examples. Conclusively, the participants rated their awareness of possible cyber vulnerabilities as being slightly increased with two participants rating their increase as being very significant.

Advice for target group

All participants were sceptical at the beginning of the workshop to be the target audience of the intervention as they considered themselves to be unswayable by phishing attacks. After showing participants spear phishing emails that are about aspects that they care greatly about (like grade releases) a noticeable shift in attitude could be observed. Most participants now seemed to notice their habits of overreacting when being confronted with emails. Conclusively, it can be said that the target audience can be quite stubborn in their views of their capabilities regarding social engineering attacks. By using retrospection and imagining scenarios or cases of carelessness, a bigger view of the issue of personal cyber vulnerabilities can be achieved.

Learning experience during the project

In general, the change approach itself was easy to derive thanks to the help of my supervisor Dr Pauline Weritz and Dr Jan-Willem Bullée, an Assistant Professor of the BMS faculty at the University of Twente. However, deciding on the many different variables that can influence the social engineering intervention was hard especially as some sources contradicted other sources. This uncertainty resulted in the usage of a mixture that tried to incorporate aspects of many techniques that are usually referenced in the literature. Despite focusing on one aspect, many participants were more interested in the overall subject of phishing rather than the technical details regarding the identification of URLs. This made the effect of the workshop more spread out as the main focus was primarily chosen due to its statistically significant effects based on literature rather than asking the participants what they would like to place the most emphasis on. Unfortunately, the last 10 minutes of the seminar could not be used to make the participants fill out the last questionnaire due to the underestimation of time required for groups to be formed and the rather surprisingly long discussions held after each round. Instead, the follow-up questionnaire was filled out by the participants after the seminar has ended.

The coaching sessions were a great help in improving my presentation skills and general appearance in front of groups of people. The main subject or theme that was discussed during the sessions is the issue of being trustworthy. Trustworthiness is on the one hand a very important characteristic trait which helps in communicating with other people, and on the other hand makes convincing other people of opposite belief more efficient. During the sessions, different sub-classes of trustworthiness like being charismatic or being responsible were explored. Those sub-traits acted as a point of improvement to the main goal of becoming more trustworthy. While first working on the issue of being more confident by being more proactive and by acknowledging the skills and tools I acquired over time, the sub-trait of being responsible was discussed in the most recent coaching session. With those discussions the range of actions that could be taken to f.e. recruit participants increased.

The feedback sessions on Monday the 8th and 22nd of May were substantial in making the fundamental change approach take place in person as a seminar instead of a more web-based approach. It also reigned in more radical ideas of making unannounced seminars with more or less unwilling participants and made the idea of priming the participants about the subject of phishing and then surprising them with preplanned facts and actions seem more effective than initially expected.

My leadership style was always more like a democratic laissez-faire which developed in recent times to a more transactional leadership with aspects of transformational leadership. This change was caused by the deeper examination of leadership styles as taught by Van Dam (n.d.). It allowed me to get past the initial barrier of avoiding talking about leadership and led me to have a deep retrospective on my own behaviour. To change the habits of other people I always tried to show a broader view of an issue from multiple perspectives. The enhancement of intrinsic change was never a significant consideration for me as by introducing someone to enough information, my assumption was that most people would automatically change their behaviours to adapt to the newly acquired information. The ways of delivering or encouraging that change were not explored at all. Confirming this interpretation is the insights report which summarises my personality as being more reserved and quiet. It describes me as being aloof and emotionally detached which overlaps with the distance taken regarding the communication of subject-containing emotions like habits and being unaware of how important communication is. This changed throughout the project where I had to make more important decisions and considerations regarding the medium of communication, the way of presenting the educational material and how to prepare a seminar for a small group of people. While the main idea of letting the participants process the information on their own to come to their conclusions stayed the same, the ways how that information transfer should happen expanded greatly.

Reference

University of Twente, PASSWORD group. (2022, 6). How well are we as UT employees able to detect online crime? Retrieved from `https://www.utwente.nl/en/cyber-safety/news/2022/6/673178/how-well-are-we-as-ut-employees-able-to-detect-online-crime`

Derksen, R. (2022, February). Effectiveness of social engineering interventions over time. Retrieved from `http://essay.utwente.nl/89466/`

Bullée, J.-W. H., Montoya, L., Pieters, W., Junger, M., & Hartel, P. (2018). On the anatomy of social engineering attacksA literature-based dissection of successful attacks. *Journal of Investigative Psychology and Offender Profiling*, 15(1), 20-45. doi: `https://doi.org/10.1002/jip.1482`

Bullee, J.-W., & Junger, M. (2020, August 5). How effective are social engineering interventions? A meta-analysis. *Information and Computer Security*, 28(5), 801-830. doi:

10.1108/ICS-07-2019-0078

Alkhalil, Z., Hewage, C., Nawaf, L., & Khan, I. (2021). Phishing Attacks: A Recent Comprehensive Study and a New Anatomy. *Frontiers in Computer Science*, 3. doi: 10.3389/fcomp.2021.563060

Keeplabs. (2021). *Email Security Vulnerability Report.* Retrieved from www.keepnetlabs.com

Sheng, S., Holbrook, M., Kumaraguru, P., Cranor, L. F., & Downs, J. (2010). Who Falls for Phish? A Demographic Analysis of Phishing Susceptibility and Effectiveness of Interventions. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 373-382). New York, NY, USA: Association for Computing Machinery. doi: 10.1145/1753326.1753383

MDN_contributers. (2023, 2). What is a URL? *Mozilla Foundation.* Retrieved from https://developer.mozilla.org/en-US/docs/Learn/Common_questions/Web_mechanics/What_is_a_URL

Ferreira, A., & Lenzini, G. (2015). An analysis of social engineering principles in effective phishing. In *2015 Workshop on Socio-Technical Aspects in Security and Trust* (pp. 9-16). doi: 10.1109/STAST.2015.10

Cialdini, R. B. (2009). *Influence: The Psychology of Persuasion.* Collins Business Essentials. Retrieved from https://books.google.nl/books?id=5dfv0HJ1TEoC

Eftimie, S., Moinescu, R., & Răcuciu, C. (2022). Spear-Phishing Susceptibility Stemming From Personality Traits. *IEEE Access*, 10, 73548 - 73561. doi: 10.1109/ACCESS.2022.3190009

Caputo, D. D., Pfleeger, S. L., Freeman, J. D., & Johnson, M. E. (2014). Going Spear Phishing: Exploring Embedded Training and Awareness. *IEEE Security & Privacy*, 12(1), 28-38. doi: 10.1109/MSP.2013.106

Abawajy, J. (2014). User preference of cyber security awareness delivery methods. *Behaviour and Information Technology*, 33(3), 237-248. doi: 10.1080/0144929X.2012.708787

Scholten, H. (2022, 1). Slides Class 2: Effective Leadership in Organizations (2022-1B). Retrieved from https://canvas.utwente.nl/courses/11546/pages/slides-class-2?module_item_id=368754

Sheng, S., Magnien, B., Kumaraguru, P., Acquisti, A., Cranor, L. F., Hong, J. I., & Ferrall-Nunge, E. (2007). Anti-Phishing Phil: the design and evaluation of a game that teaches people not to fall for phish. In *Symposium On Usable Privacy and Security.*

VirusTotal. Sample submission page. Retrieved from https://www.virustotal.com/gui/home/upload

Improving Study Strategies

Investigating the Impact of the Pomodoro Technique on Attention Span and Social Media Addiction

Vithursika Vinasiththamby

Project supervisor: Dr. A.H. Enklaar

Introduction

In the current day and age, Social Media has been a phenomenon that is irresistible to all ages. Social Media is defined as "the means of interactions among people in which they create, share, and/or exchange information and ideas in virtual communities and networks". As if now, the most popular Social Media platforms are Facebook, Instagram and Twitter. Since the first crickets of Social Media were heard, the term addiction has been associated with it. Addiction is a word that carries a lot of weight and due to the dramatization of addiction in modern-day media (Kosovski & Smith, 2011) often students do not realise their own problematic behaviour. Addiction can be defined as the excessive use of any substance that can lead to negative health effects. More specifically, Internet or Social Media addiction can be described as the excessive and unhealthy use of these platforms. (Ajibade et al., 2022) Social Media algorithms have often the reputation of purposely going to various lengths to make sure their users do not leave the platform since this would result in a loss of money. (Bujph, 2022)

Attention Span

The internet has been expanding rapidly and thus the amount of content has been expanding rapidly as well. This content is often made for fast consumption. For example, let us take a look at TikTok. This app that started out as a simple music app has now grown into a multi-purpose on-trend app. The videos uploaded on this platform are known to be extra short. Therefore it takes very little effort when it comes to concentration. Experts have been warning society about the possible effects this could have on the general attention span of our upcoming generation. (Davis, 2021)

These platforms, needing to generate income, make use of push notifications to lure the user back into the realm of relaxation. As a student being lured into the realm of many possibilities that have nothing to do with their current task is very tempting. Since students always have their phones at hand and push notifications are frequent, students struggle to keep to their planning and follow their original study strategy. Research has also shown that students that the concentration of students is heavily disrupted by Social Media usage during their breaks. There is a significant difference between coming back from a break without the use of Social Media and with the use of Social Media. It takes the student several extra minutes to get back into the same level of concentration with the latter.

Proposed Solutions

The question now would naturally be what the right measure is. In the paper "research trends in social media addiction and problematic social media use" the authors describe that there are a few possible solutions.

One of the solutions is the regulation of Social Media platforms, where it is implicated that the use must be controlled in some way. It is also suggested that governments should restrict their access to certain websites or platforms. It is also suggested that the amount of time on these platforms should be restricted to make sure that they do not get distracted from their work.

The second recommendation given in the paper is the education of adolescents on their social media usage. Users must be educated on the benefits of using these platforms, but also on the risks that come with it. Researchers mention that specifically, education in the field of cyber-bullying, sexting and privacy breaches is lacking.

The third and final recommendation is parental involvement in the Social Media usage of adolescents. In this recommendation, the responsibility is given to the parents to ensure the regulation of their children's usage.

In conclusion, to change the destructive effects of Social Media on concentration, it is essential for students to realize the effect of Social Media on their behaviour and how it is more specifically hurting their study strategy. On top of that, they must be handed some form of tool to regulate their Social Media use, since it is easier to handle an addiction when certain tools are provided. (Pellegrino, Stasi, & Bhatiasevi, 2022)

Change project

Goals

The main goal of this project is to make participants more productive in their studies particularly in respect to retaining their attention span. Having the ability to focus for a longer period of time without any distractions results in better academic performance. On top of that, research shows that self-esteem and academic results are positively correlated. (Rosenberg, Schooler, & Schoenbach, 1989) Self-consistency theory supports the claim that self-esteem and academic results are significantly related since it explains that people prefer less uncertainty and more consistency. Therefore, people make active efforts to achieve self-confirmatory feedback, such as the fact that all desire to perform well in academics to prove they are smart. When they perform worse and therefore their self-consistency gets hurt, this has a significant impact on their self-esteem.

Moreover, this intervention should help participants with their first steps regarding battling their Social Media addiction. By utilizing the proposed solutions the participants should receive the tools necessary. There should also be an intrinsic motivation created such that the participants want to undergo such a change. Intrinsic motivation is created through awareness and therefore a comprehensible information exchange is needed. Humans are naturally curious, interested and motivated in being successful, it is only needed to speak to this part of the participants. (Courtney E. Ackerman, 2023)

Target Group

The target group for this intervention will be students from both high schools and universities. Social Media has a great influence on students and their behaviour. (Ajibade et al., 2022) Research shows that academic and social behaviour can be heavily influenced by Social Media addiction.

Exploratory Survey

To see if, in my current environment, a similar problem existed when it came to Social Media use and studying habits, I conducted a small survey. This survey was conducted with both high school and university students. In this survey, I asked very basic questions that related to the use of Social Media throughout the day and in particular the use of Social Media during studies. Furthermore, I included a question about their satisfaction with their own work. The results fit my hypothesis since more than 50% of the people indicated that they struggled with the use of Social Media during studies. Around the same percentage of students indicated they lose track of time while they are on Social Media and a majority indicated it is often due to push notifications. Finally, more than 50% indicated that they were dissatisfied with their current study strategy. This shows that students struggle to keep away from their phones while they are studying. On top of that, it shows that it is affecting the image they have of their own studying habits. The mental health of students is of utmost importance and therefore change is needed.

Outline

This change intervention has the following expected outcomes:

- After the intervention, the participants should be aware of their Social Media addiction
- After the intervention, the participants should undergo a study strategy change
- After the intervention, the participants should have better self-esteem

Approach

The intervention will take place in the form of two study evenings. The study evening approach has been chosen since it is easier to monitor that all the participants have been exposed to the same environment and that all the variables are the same. Taking into account that people have different study situations, this could influence the results of the change intervention. Having all the participants in one place gives guarantee that there are no external factors that need to be taken into consideration.

Pomodoro Timer

"Turning Time from Enemy into Ally" is how the Pomodoro Timer is described by researchers. (Wang, Gobbo, & Lane, 2010) The Pomodoro Timer works with time boxes (which is a specified length of time). Each time box is 25 minutes followed by a 5-minute break. According to research (Gobbo & Vaccari, 2008), 20-45 minute time boxes maximize concentration. The proposed Pomodoro Timer, therefore, chooses a 25-minute time interval. Usage of time boxes makes sure that the two kinds of interruptions are limited:

- External: An outside signal that makes it such the concentration breaks.
- Internal: An internal signal, such as checking a phone, that breaks the concentration.

Due to the invisible rule, time, the user is forced to adhere and is disturbed less. It is important to note that it is not possible to change the time frame of the Pomodoro Timer. There is no possibility of only doing half a Pomodoro.

Intervention

There were three stages to the change intervention:

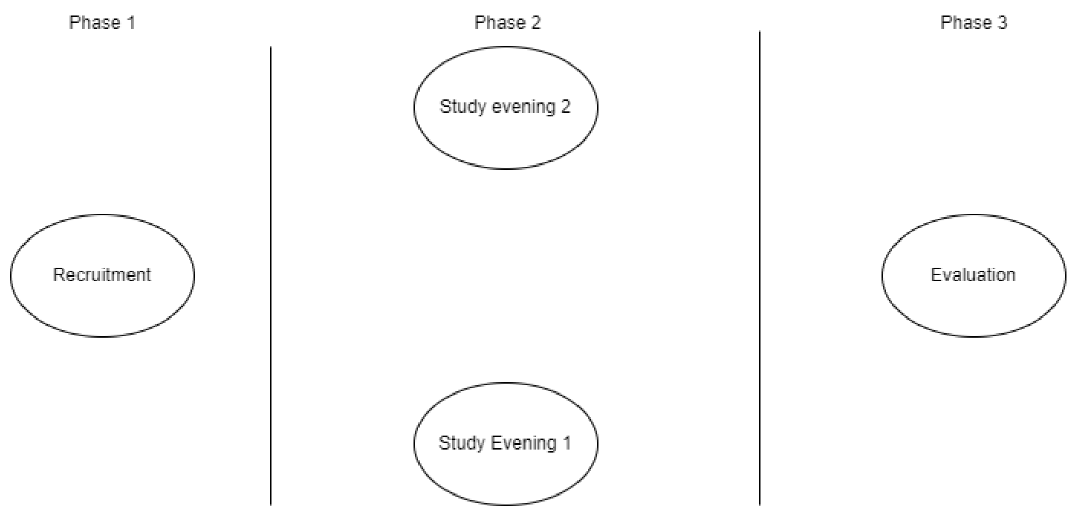


Figure 15: Stages of the intervention

Recruitment

In order to make sure that the students selected for the study evenings would be as diverse as possible, there were posters printed out and distributed in the library of the University of Twente. Furthermore, there was contact with a high school to attempt and create a study evening there as well. Approaching the issue in multiple environments has the advantage that the participants in the intervention are as diverse as possible. With the promise of free food and drinks, intellectual stimulation, and with the perspective of a productive night, they were convinced to join the study evening.

Study Evening

The study evening has as main objectives:

- Awareness of the possible destructive side-effects of Social Media
- Learning how to learn with Pomodoro Timer

Before the session started, there was an informal briefing on the effects of extensive use of Social Media. Furthermore, it was explained how an addiction to Social Media can lead to a shorter attention span and lead to more difficulties when it comes to studying. On top of that, it was strongly encouraged to find other relaxing mechanisms aside from Social Media during the breaks during the study evening in order to combat their Social Media addiction. To make people want to change, it is of utmost importance to make them receptive to change at first. (Courtney E. Ackerman, 2023) To create intrinsic motivation, this short informal talk was needed. The students could after that proceed using the Pomodoro Timer according to the set rules. The students would be studying for a time box of 25 minutes after which they would get a five-minute break. After a two-hour Pomodoro session, the study evening was concluded.

Evaluation

The evaluation was done in two parts:

- Evaluation form
- Oral reviews

After the session has concluded, the participants were asked to fill in an evaluation form to measure the effectiveness of the intervention. On top of that, the participants were asked a few general remarks regarding their experience.

Results

There were in total nine participants for the two study evenings. As seen in Figure 2, the majority of the students claim that there was a positive change in their ability to concentrate after making use of the Pomodoro Timer. This is also supported by an excerpt mentioned by one of the participants: "I think the study evening was very productive which could be an influence of the whole atmosphere of the study evening. the Pomodoro method helped me keep my mind concentrated on the task that I was doing. Splitting the whole work time into sessions helped me to optimise the time that I worked very well."

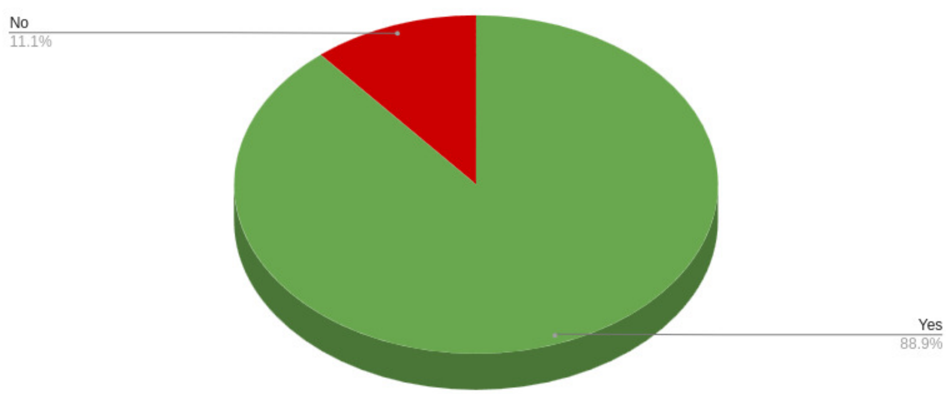


Figure 16: Change in ability to concentrate

As seen in figure 3, a portion of the participants argues that they use Social Media less during studying.

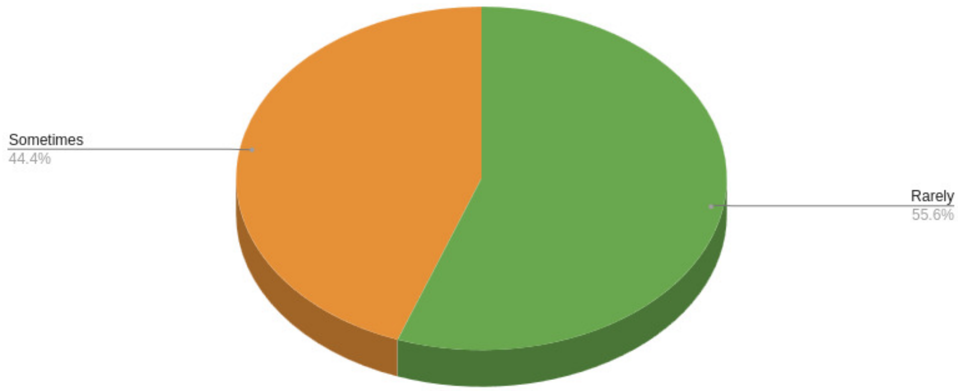


Figure 17: Decrease of frequency of Social Media Use

As seen in figure 4, most of the participants find it easier to resist the urge to use Social Media.

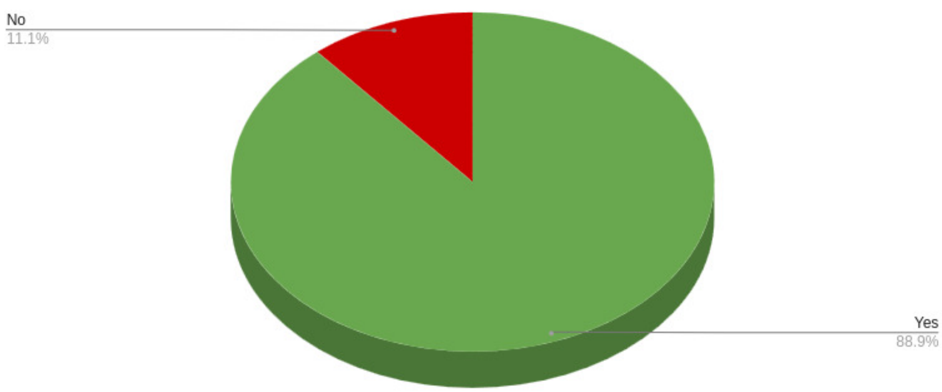


Figure 18: Easier to resist the urge

Finally, it can be seen in Figure 5 that there are 5 participants that have higher satisfaction in their own study strategy when they make use of the Pomodoro Timer. One participant argued the following: "I found that the times were a bit off for me. I find that when I can get in the zone, I can focus for a lot longer than 25 minutes, and don't feel the need to look at my phone in that time. Trying to adhere to the Pomodoro technique in this way was annoying at times because I felt like I was losing concentration power but taking breaks I didn't feel I needed".

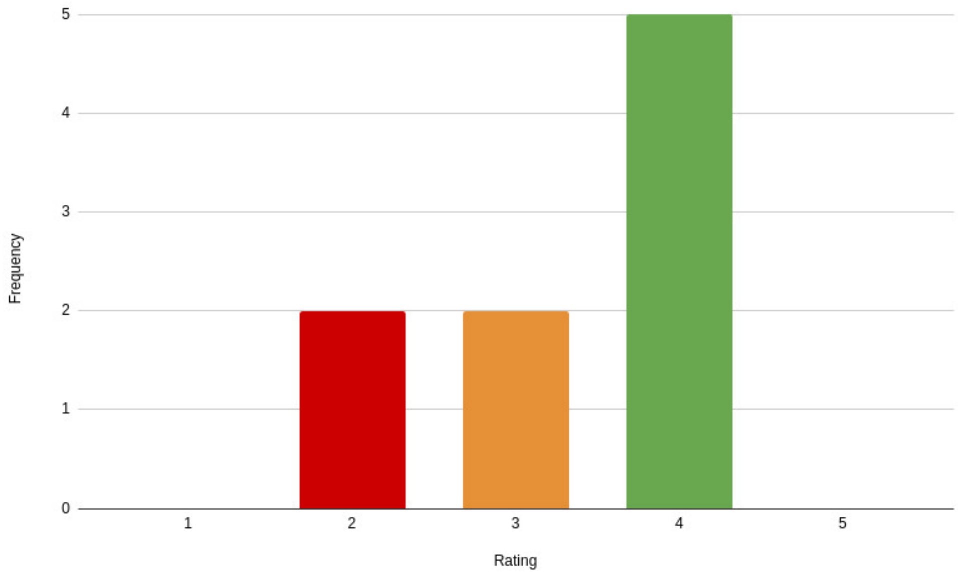


Figure 19: Satisfaction in difference of study concentration

Conclusion

It can be concluded that the Pomodoro Timer has successfully helped the issue the participants had with their short attention span. The general consensus seemed to be that the Pomodoro Timer is a handy tool that can be used to have a better study strategy. Their behaviour tends to undergo a change too since when using the Pomodoro Timer it seems to be a lot easier to resist the urge to check Social Media. Therefore, the goal that there must be a study strategy change has been met. A goal of the intervention was to hand students the Pomodoro Timer and get them familiar with it as a tool. It can be seen that students often had a positive consensus and were satisfied with their own performance after using the Timer. Satisfaction with academic behaviour can lead to better self-esteem which was another goal of the intervention.

Furthermore, another goal of the change intervention was to cause awareness among the students regarding their Social Media usage. As one participant described: "The session made me realize how much of my concentration power goes away to social media". It becomes clear that because of the introduction, there was a realisation for some participants about their own Social Media use. However, as can be seen from the results (figure 3) participants often portrayed similar behaviour when it came to checking Social Media. It can be concluded that although students were more aware of their Social Media use, they did not shy away from Social Media greatly during the break.

Discussion

Due to the limited time period for the intervention, the method chosen was a study evening. However, it can be argued that intervention over a longer period of time could have resulted in different results for the Social Media use of the participants. As seen in Figure 4, the frequency of use of Social Media seemed to have not decreased significantly. Addiction cannot be changed in a matter of hours but needs more effort. (Laudet, Savage, & Mahmood, 2002)

There were a few students who were not significantly more satisfied with their study strategy after the intervention. This can be explained by looking at the rigor of the Pomodoro Timer. Not all students can adjust themselves to the predefined time boxes and therefore the experience can be frustrating. Some students found it counter-productive to be forced to take a break when they were finally in the right concentration. This led to the whole experience being less satisfying.

During this intervention, seven individuals expressed interest in participating in the study evening at the university. This fell short of my initial plan. The participants were drawn from a diverse range of students spanning various age groups, which can be regarded as a diverse aspect. However, the backgrounds of the students were limited to university students with only a few high school students. To ensure future research is more comprehensive, it is essential to involve participants from more diverse backgrounds. Selecting a suitable evening that accommodated all interested parties posed an enormous challenge. Moreover, organizing the study evening with high school students proved to be even more complex as it became practically impossible to reach them. Their academic year was concluding, and there was no inclination toward studying. Consequently, only two participants were able to take part in the study evening.

I learned that the main limitation was time and that it was necessary to execute the main components of my intervention at the earliest convenience. For the next project, it will result in better and more reliable outcomes if there is a greater number of participants over a longer period.

The method of acquiring participants for the intervention was effective as it consisted of using Social Media and flyers, in more frequented spaces, to attract attention. It is sensible to use a similar practice in the next change project since it can be considered an effective measure to reach adolescents. Additionally, study evenings were greatly appreciated by participants and praised to be highly effective on their own which thus can be carried on to the next intervention.

Furthermore, there are a lot of organizational skills involved in organizing two study evenings that have many aspects to them that I was not aware of beforehand. I learned the importance of preparation and providing adequate information to the participants. In the flyers that were spread to the students, there was a very compact description of the study evening. Regardless of my preparation, it came off as unprepared and unprofessional. Therefore, for a future project, it is needed to inform the participants ahead of time in detail what is to be expected of them.

Advice

The participants should continue with their usage of the Pomodoro Timer over a longer period, such that they get accustomed to the use. On top of that, the participants are encouraged to try many other forms of time boxing to figure out which one fits their personality and way of studying well. Besides, they are strongly nudged towards Social Media free studying which will ensure a longer and more productive study session.

Further Research

Further research in this particular topic can be implemented through a longer and more intensive intervention, where participants are observed throughout multiple weeks. Moreover, there needs to be more research into similar, but different study strategies that could tackle similar issues as discussed in the introduction. As one of the participants indicated the Pomodoro Timer can be too rigid, therefore more research is needed into the more flexible study strategies such as Flowtime Technique. (Whitaker, 2020)

Personal Development

During this project, there was one umbrella goal that I wanted to work which was leadership skills. As one would know, leadership can take many different forms and therefore the skills needed for every other form are different. Inspired by the leadership module that was part of my Honours track, I want to be a transformational leader. I have always wanted to lead people by motivating and intellectually stimulating them. However, leaders must also be confident and must have peace with making mistakes. This is something that I struggle a great deal with since failure is often not an option in my usual manner of leading.

My goals were therefore defined as:

- Accepting and admitting to mistakes when in a group setting
- Voicing my opinions consciously
- Being more confident in the decisions I take
- Being comfortable taking the lead
- Going from a more "blue" personality to a more "yellow" personality

During my change project, I had the chance to develop myself such that I could reach the goals that I set for myself. During the study evenings, I had to take the lead in a group of people that I did not know which is something that causes me unease. However, due to the coaching sessions I had, I felt comfortable in the group.

I came to the acceptance that making mistakes is a human character. It makes sense to strive for perfectness, but it is not possible to reach it. Leading a new group of people and guiding them through the evening, confronted me with the fact that mistakes are normal. For example, the venue for the study evening was not as clear to the participants as it was to me. Therefore, it caused some confusion which normally would have been detrimental. However, I accepted that there would be some delay, announced it to the participants, and continued as planned.

On top of that, I looked for opportunities to voice my opinions throughout this module. I had multiple parallel projects I was confident in sharing my opinions. The coaching sessions were extremely helpful as they helped me talk through the insecurities I had when it comes to leadership and hit the nail right on its head. The sessions allowed me to pinpoint the insecurities directly and deal with them immediately. The worst thing that could happen is a discussion and I can present my side of the story. Hence, the fear of discussion dissipated. This realisation significantly boosted the decisions I made.

Throughout my life, I always had a "blue" personality, according to the Insights Discovery profile. However, during this project, I wanted to move more towards a "yellow" personality such that I have characteristics like "Sociable" and "Persuasive". I want to get out of my comfort zone. There are certain characteristics needed to be transformational leaders which can be found in the "yellow" personality. By the before-described change, I can conclude that I am moving towards a more "yellow" personality while still maintaining my "blue" personality.

However, as discussed in the lecture, no personality is better than the other. Hence, this cannot be called an improvement but simply an adjustment to fit my desired leadership style. Realising the strengths and the weaknesses of your personality allows you to work better in a team. The Process of Change track did not only teach me about change in general, it allowed me to get a deeper understanding of myself. It dared me to think broader than I could have ever imagined and it dared me to go to depths that I could have only dreamt about. Throughout this track, I learned the importance of words and the importance of knowledge. These one-and-half years have molded me into the leader I am and want to be.

References

Ajibade, S., Mejarito, C., Egere, O., Adediran, A., Gido, N., & Bassey, A. (2022, 10). An analysis of the impact of social media addiction on academic engagement of students. *Journal of Pharmaceutical Negative Results*, *13* , 1390-1398. doi:10.47750/pnr.2022.13.S04.166

Bujph. (2022, Feb). *What makes tiktok so addictive?: An analysis of the mechanisms underlying the worlds latest social media craze.* Retrieved from https://sites.brown.edu/publichealthjournal/2021/12/13/tiktok/

Courtney E. Ackerman, M. (2023, Apr). *Self determination theory and how it explains motivation.* Retrieved from https://positivepsychology.com/self-determination-theory/

Davis, M. (2021, Oct). *Tiktok is bad for your brain: Constant social media streaming narrows collective attention span, adversely affects mental health.* Retrieved from https://www.sciencetimes.com/articles/34138/20211025/tiktok-bad-brain-constant-social-media-streaming-narrows-collective-attention.htm

Gobbo, F., & Vaccari, M. (2008, 06). The pomodoro technique for sustainable pace in extreme programming teams. doi:10.1007/978-3-540-68255-418

Kosovski, J., & Smith, D. (2011, May). Everybody hurts: Addiction, drama, and the family in the reality television show intervention. *Substance use & misuse*, *46* , 852-8. doi:10.3109/10826084.2011.570610

Laudet, A. B., Savage, R., & Mahmood, D. (2002). Pathways to long-term recovery: A preliminary investigation. *Journal of Psychoactive Drugs*, *34* (3), 305311. doi:10.1080/02791072.2002.10399968

Pellegrino, A., Stasi, A., & Bhatiasevi, V. (2022, 11). Research trends in social media addiction and problematic social media use: A bibliometric analysis. *Frontiers in Psychiatry*, *13* . doi:10.3389/fpsyt.2022.1017506

Rosenberg, M., Schooler, C., & Schoenbach, C. (1989). Self-esteem and adolescent problems: Modeling reciprocal effects. *American Sociological Review*, *54* (6), 10041018. Retrieved 2023-06-22, from http://www.jstor.org/stable/2095720

Wang, X., Gobbo, F., & Lane, M. (2010, 05). Turning time from enemy into an ally using the pomodoro technique. In (p. 149-166). doi:10.1007/978-3-642-12442-610

Whitaker, M. (2020, Aug). *How can the flowtime technique help me? finding power through productivity.* Retrieved from https://blog.utc.edu/center-professional-education/2020/08/27/how-can-the-flowtime-technique-help-me-finding-power-through-productivity/

Processes of Change

Honours Programme
2022/2023

UNIVERSITY
OF TWENTE.