DETERMINATION OF WORKING STYLES OF STUDENTS OF TECHNOLOGY AT THE FACULTY OF TECHNOLOGY AND METALLURGY IN SKOPJE IN RELATION TO CURRICULUM CHOICE

Ana Tomova
Faculty of Technology and Metallurgy, Skopje, North Macedonia, anatomova@tmf.ukim.edu.mk
Beti Andonovic
Faculty of Technology and Metallurgy, Skopje, North Macedonia, beti@tmf.ukim.edu.mk
Kiril Lisickov
Faculty of Technology and Metallurgy, Skopje, North Macedonia, klisickov@yahoo.com
Aleksandar T. Dimitrov
Faculty of Technology and Metallurgy, Skopje, North Macedonia, aco2501@gmail.com

Abstract: The purpose of this paper is to examine the benefits and drawbacks of Working Styles in a broad sense, with a focus on identifying and interpreting the dominant Working Styles among students of technology in various curricula at The Faculty of Technology and Metallurgy in Skopje. This research included Julie Hay's questionnaire to determine students' Working Styles. The objective was to identify characteristics that are reflected through specific Working Styles and their combination, representing a distinct pattern of expected behaviors, known as the script pattern. These findings were summarized for each group of students of technology in five different curricula and subjected to a detailed analysis. The advantages and disadvantages of the identified Working Styles were determined, and essential steps to enhance the benefits and minimize the drawbacks were outlined. Additionally, recommendations were provided to motivate students to further utilize their potential. The study established a connection between the demonstrated Working Styles of student groups and their choice of curriculum. The intention of this research is to contribute to the improvement of curricula and teaching methods, ultimately benefiting current and future students.
Keywords: Working Styles, Drivers, Julie Hay's Questionnaire, sentence pattern, script pattern.

1. INTRODUCTION

Roughly half a century ago, Taibi Kahler (Kahler, 1975) introduced the theory of Drivers, which has since developed into five distinct styles. These Drivers are named after Freud's concept of drives or fundamental instincts for repetitive behavior. Kahler suggests that Drivers are automatic responses that we unconsciously adopt from significant figures in our past, such as parents or other authority figures. They manifest as specific compulsive behaviors, especially during times of stress (Freud, 1921); (Kahler, 1975). Drivers are subconscious behavior patterns that influence various aspects of our lives, regardless of our location or company. They represent our unconscious attempts to behave in ways that earn recognition from others (Andonovic et al., 2014); (Woollams et al., 1979). Drivers exhibit behavioral indicators such as words, voice, posture, facial expressions, and gestures. Drivers can be observed as preferred styles of social interaction and specific reactions to problems and stress. While Klein initially examined the positive aspects of Drivers, Hay has specifically emphasized and expanded upon these positive aspects, referring to them as Working Styles and has developed the well-known Working Styles Questionnaire for identifying an individual's Working Styles in professional settings.

By recognizing and comprehending the Working Styles (Drivers) displayed by individuals, they can acknowledge and harness the positive aspects of their behavior while effectively addressing the negative aspects. There are five distinct Working Styles that have been identified, each named after the characteristic behavior they represent. These Working Styles and their distinctive features are presented in Table 1. (Andonovic et al., 2014, 2015, 2017); (Dimitrov et al., 2019); (Hay, 2009); (Steiner, 1974); (Woollams et al., 1979); (Zabevska Zlatevski, 2017).

Table 1 Working Styles' Characteristics

WS	Words	Tones	Gestures	Postures	Facial Expr	Com door
Be Perfect	- of course - obviously - clearly - I think (tells more than asked)	clipped, righteous, efficacious	counting on fingers, cocked wrist, scratching head	erect, rigid	stern, shame, embarrassment	Thinking Feelings Behaviour
Be Strong	- No comment! - I don't care! (doesn't use here-	hard, monotone,	hands rigid, arms folded	rigid, one leg over	plastic, hard, cold	Behaviour Thinking Feelings

	and-now feelings)					
Try Hard	- It's hard! - I can't! - I'll try! - I don't know! (doesn't answer questions-repeats, tangents)	impatient	clenched, moving fists	sitting forward, elbows on legs	slight frown, perplexed look	Behaviour Feelings Thinking
Hurry Up	Let's go! interrupts people-finishes their sentences	up & down	squirms, taps fingers	moves quickly	frowning, eyes shifting, rapid	No specific order
Please Others	- You know? - Could you? - Can you? - Kinda - Um hmm - Would you?	high whine	hands outstretched, frequent head nodding	head nodding	raised eyebrows, looks away	Feelings Behavior Thinking

Research indicates that certain professions show a statistically significant prevalence of specific dominant Working Styles (Drivers). For example, mathematicians often demonstrate Be Perfect as their primary dominant Driver, aligning with their need for logical thinking, organizational skills, and the ability to synthesize information. On the other hand, Legal Advisors do not typically exhibit Try Hard as a dominant Driver, due to the well-established principles and regulations that govern their profession, which may limit the need for innovative solutions. The concept of Working Styles can be applied in personnel selection processes to assess the presence of essential skills and qualifications for a particular job.

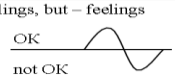
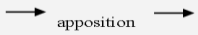
Since individuals are primarily influenced by two Working Styles, the combination of these Styles gives rise to specific characteristics that impact their way of life, as well as their thoughts, emotions, and behaviors. This combination is known as a life script pattern. Dr. Kahler has described six script patterns, but we focus on the five most common ones. These patterns influence an individual's thinking, emotions, and behaviors, and they are also associated with our perception of time and our tendency to focus on the past, present, or future. (Bary et al., 1990).

Dr. Kahler has identified the following script processes associated with these patterns:

1. AFTER - Expressing fear of something bad happening.
2. UNTIL - Believing that one cannot have fun until certain conditions are met.
3. ALWAYS - Feeling trapped, blaming or waiting for rescue, or manipulating others from a position of being trapped.
4. NEVER - Struggling to complete life goals or projects.
5. ALMOST - Nearly completing tasks or work, but not finishing them entirely.

Each Working Style can be associated with a specific script pattern that possesses its own unique characteristics Andonovic et al., 2013); (Petkovski at al., 2018); (Steiner, 1974). Most individuals tend to follow one script pattern in various aspects of their lives, although some individuals may follow one pattern in their personal life and a different one in their professional or social life. Table 2 presents a summary of the main characteristics, with a particular focus on the sentence patterns associated with the most common life scripts.

Table 2 Characteristic sentence pattern for different life script

Script patterns (combination of WS)	Characteristic sentence pattern
NEVER (TRY HARD, rarely others)	 - Discontinued, seem like it will never end
ALWAYS (BE STRONG, HURRY UP, sometimes others)	- Nonconsistent sentences - A lot of qualifying words (maybe, we'll see, I'm not sure, sometimes …)
AFTER (PLEASE OTHERS, HURRY UP)	+ feelings, but – feelings  OK not OK
UNTIL (BE PERFECT, combined with HURRY UP or BE STRONG)	 apposition
ALMOST (TRY HARD, PLEASE OTHERS)	 Type I Type Type III

The main emphasis of this study revolves around the positive elements of Drivers, particularly the Working Styles and their associated script processes, observed within a larger group of students at The Faculty of Technology and Metallurgy in Skopje. The research aims to establish a link between the Working Styles prevalent in various student groups (corresponding to different curricula at the faculty) and provide individualized conclusions and recommendations for each student, as well as for the separate groups/curricula.

2. MATERIALS AND METHODS

A survey was conducted among students enrolled in five different undergraduate curricula in technology at The Faculty of Technology and Metallurgy in Skopje to explore the practical implementation of theoretical concepts. The survey was administered to 107 students in their second and third year across five different curricula: Inorganic Engineering and Environmental Protection (IEEP), Clothing Design and Engineering (CDE),, Food Technology and Biotechnology (FTBT), Material Engineering and Nanotechnologies (MENT), and Design and Management of Technological Processes (DMTP). By utilizing Julie Hay's Working Styles Questionnaire, it was possible to identify the Working Styles of the participants. The responses to the questionnaire were statistically analyzed for each individual student and additionally, average values for Working Styles were calculated for each curriculum by aggregating the individual values (Table 3 to Table 12). Finally, a summary statistical analysis was performed for the Working Styles of the entire group of respondents, shown in a summary table (Table 13) and histogram (Figure 2).

3. RESULTS

Working Styles were initially determined for each individual student and then summarized in groups (different curricula) and the characteristic pattern of behavior - script pattern, the main communication door and the characteristic pattern of the sentence were determined accordingly (Table 3 to Table 8). Lastly, the summary of results for all 107 respondents Working Styles was shown in table (Table 9) and histogram (Figure 1).

Table 3 Summary for IEEP curriculum (10 respondents)

Working Style	Hurry Up	Be Perfect	Please Others	Try Hard	Be Strong
Overall	23.1	25.2	29.4	21.4	**23.4**
Range dominance	4	2	1	5	**3**
Script pattern	**Never**	**Always**	**After**	**Until**	**Almost**
Frequency	**0**	**0**	**4**	**4**	**2**

Table 4 Summary for CDE curriculum (27 respondents)

Working Style	Hurry Up	Be Perfect	Please Others	Try Hard	Be Strong
Overall	21,7	28,6	30,2	23,7	**22,6**
Range dominance	5	2	1	3	**4**
Script pattern	**Never**	**Always**	**After**	**Until**	**Almost**
Frequency	**0**	**2**	**13**	**10**	**1**

* NB – Plus 1 script free person

Table 5 Summary for FTBT curriculum (60 respondents)

Working Style	Hurry Up	Be Perfect	Please Others	Try Hard	Be Strong
Overall	23.1	25.2	29.4	21.4	**23.4**
Range dominance	4	2	1	5	**3**
Script pattern	**Never**	**Always**	**After**	**Until**	**Almost**
Frequency	**0**	**5**	**26**	**25**	**4**

Table 6 Summary for MENT curriculum (3 respondents)

Working Style	Hurry Up	Be Perfect	Please Others	Try Hard	Be Strong
Overall	18,8	22	28	21,3	**18,3**
Range dominance	4	2	1	3	**5**
Script pattern	**Never**	**Always**	**After**	**Until**	**Almost**
Frequency	**0**	**0**	**3**	**0**	**0**

Table 7 Summary for DMTP curriculum (7 respondents)

Working Style	Hurry Up	Be Perfect	Please Others	Try Hard	Be Strong
Overall	20,4	29,6	27,9	25,4	**26,4**
Range dominance	5	1	2	4	**3**
Script pattern	**Never**	**Always**	**After**	**Until**	**Almost**
Frequency	**0**	**1**	**1**	**5**	**0**

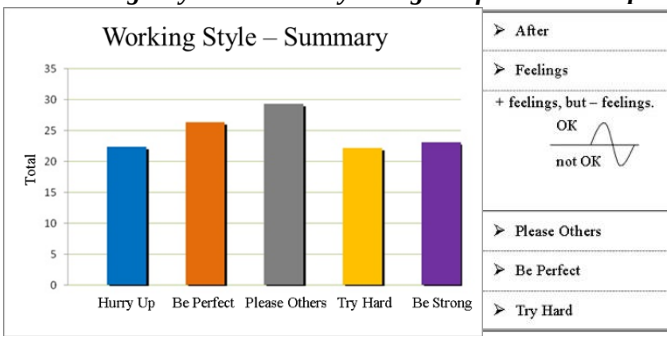
Table 8 Summary for student groups characteristics (107 respondents)

	IEEP	CDE	FTBT	MENT	DMTP
Script pattern	➢ After ➢ Feelings + feelings, but – feelings. OK not OK	➢ After ➢ Thinking + feelings, but – feelings. OK not OK	➢ After ➢ Feelings + feelings, but – feelings. OK not OK	➢ After ➢ Feelings + feelings, but – feelings. OK not OK	▸ Until (Be Perfect, Be Stron ▸ Thinking → apposition →
Com. door					
Script sentence pattern					
Dominant WS	➢ Please Others	➢ Please Others	➢ Please Others	➢ Please Others	▸ Be Perfect
Second WS	➢ Be Perfect	➢ Be Perfect	➢ Be Perfect	➢ Be Perfect	▸ Please Others
Lowest	➢ Try Hard	➢ Hurry Up	➢ Try Hard	➢ Be Strong	▸ Hurry Up

Table 9 Summary for all curricula (107 respondents)

Working Style	Hurry Up	Be Perfect	Please Others	Try Hard	Be Strong
Overall	22,4	26,3	29,3	22,2	23,1
Range of dominance	4	2	1	5	3

Figure 1 Workings Styles - Summary histogram for all 107 respondents



4. DISCUSSIONS

Based on the findings and analysis of the student groups, it can be deduced that there are two distinct behavioral patterns, referred to as Working Styles, among the groups following the five curricula. Specifically, among the student groups from the four curricula (IEEP, CDE, FTBT, and MENT), the primary Working Style observed is Please Others, while the secondary Working Style is Be Perfect. The least notable Working Styles show variations. It is important to note that the results for the IEEP and FTBT curricula are identical. The DMTP curriculum

demonstrates Until script pattern, with the dominant Working Style being Be perfect and the secondary Working Style being Please others.

The following conclusions can be drawn for observed curricula:

1. Inorganic Engineering and Environmental Protection (IEEP) curriculum exhibits a characteristic script pattern After. The Dominant Working Style observed is Please Others, while the secondary Working Style is Be Perfect. The least pronounced Working Style is Try Hard.

- Advantages: Demonstrates a knack for fostering positive relationships and effective communication. Works well as a team integrator, displaying empathy and understanding towards others. Particularly effective in tasks involving technical cooperation and consulting with experts in the field. Proficient in preparing scientific papers and writing reports.
- Disadvantages: Shows lack of commitment to personal ideas. Avoids criticizing even when confronted with incorrect viewpoints. Takes criticism personally, even when it is constructive. Lacks enthusiasm in taking on responsibilities and solving problems. Exhibits a limited inclination for exploring opportunities and fails to consider all aspects of tasks.
- Recommendations: Encourage thinking in terms of collective interests, including one's own. Apply basic assertiveness techniques, when necessary, firmly refusing in a polite manner to establish reasonable boundaries. Strive to be enthusiastic, generate numerous ideas, and make suggestions. Adopt a thorough approach, exploring all possibilities and considering all aspects when tackling problems. The environment can best communicate with them through "feelings" or "behaviour" communication door.

2. Clothing Design and Engineering (CDE) curriculum demonstrates a characteristic script pattern After. The dominant Working Style observed is Please Others, while the secondary Working Style is Be Perfect. The least notable Working Style is Hurry Up.

- Advantages: Functions well as a team member, promoting group harmony and actively engaging in discussions. Naturally inclined to assist others without being prompted, displaying empathy and understanding. Most effective in tasks involving technical cooperation and consultation with relevant experts. Shows proficiency in studying the technological aspects of materials and products, providing guidance and advice.
- Disadvantages: Exhibits slow work pace and struggles with time management. Avoids taking risks that may upset others and is cautious with criticism. Demonstrates a lack of commitment to personal ideas and tends to take criticism personally, even when it is constructive.
- Recommendations: Encourage considering the interests of both individuals and the collective. Learn to express opinions, voice disagreements, and develop a personal stance on various matters. Apply basic assertiveness techniques, such as politely but firmly refusing, when necessary, to establish reasonable boundaries. Strive to respond promptly to tasks with tight deadlines. Effective communication with them can be achieved through "feelings" or "behaviour" communication door.

3. Food Technology and Biotechnology (FTBT) exhibits a characteristic script pattern known as After.The dominant Working Style observed is Please Others, while the secondary Working Style is Be Perfect. The least notable Working Style is Try Hard.

- Advantages: Demonstrates the ability to build strong relationships and engage in deep communication. Plays the role of an integrator within a team and displays empathy and understanding towards others. Content with being surrounded by people, they willingly offer assistance without being prompted, relying on intuition and fostering harmony within the group. Most effective in tasks involving technical cooperation, consultation with experts, and providing advice on the technological aspects of materials and products.
- Disadvantages: Struggles with self-confidence, hesitates to express criticism (even when strongly disagreeing), takes constructive criticism personally, lacks enthusiasm in assuming responsibilities, faces difficulties in problem-solving, lacks eagerness to explore possibilities, and tends to overlook certain aspects of tasks.
- Recommendations: Encourage consideration of the interests of both individuals and the collective, including oneself. Focus on developing self-confidence through basic techniques. Learn to express opinions assertively and maintain reasonable boundaries of tolerance. Strive to be enthusiastic, exhibit creativity, adopt a thorough approach, explore all possibilities, and carefully consider all aspects when addressing problems. The environment can best communicate with them through "feelings" or "conduct" communication door.

4. Material Engineering and Nanotechnologies (MENT) demonstrates a characteristic script pattern After. The dominant Working Style observed is Please Others, while the secondary Working Style is Be Perfect. The least notable Working Style is "Be Strong."

- Advantages: Possesses a natural inclination for effective communication and teamwork, albeit not in a leadership role. Content with being surrounded by others and readily helps without being prompted, displaying empathy and understanding. Particularly successful in providing consultation and training on new production methods, techniques, materials, equipment, and human resource management. Skilled in analyzing human resources and utilizing work schedules to optimize resource allocation.
- Disadvantages: Struggles to remain calm under pressure or during crises, often reacting emotionally and exhibiting poor problem-solving abilities. Rarely expresses opinions or points of view.
- Recommendations: Assertively and with integrity, refuse obligations that have not been agreed upon. Voice opinions and perspectives confidently. Provide constructive feedback and criticism without fear of others' reactions. Prioritize personal strengths appropriately. Effective communication with them is best achieved through "feelings" or "behavior" communication door.

5. Design and Management of Technological Processes (DMTP) curriculum exhibits a characteristic script pattern known as Until. The dominant Working Style observed is Be Perfect, while the secondary Working Style is Please Others. The least notable Working Style is Hurry Up.

- Advantages: Diligently verifies facts, thoroughly prepares, and strives for perfection in both appearance and content. Particularly effective in conducting research, designing, organizing, and supervising industrial production processes. They also demonstrate proficiency in tasks involving technical cooperation and consultation with relevant experts.
- Disadvantages: Imposes high standards on themselves and others, often creating multiple drafts before finalizing a version. Exhibits lower efficiency at work, tends to be late with preparations, struggles to handle stress and meet deadlines, possesses weak time management skills, prefers working alone, tends to demotivate others through criticism, and frequently experiences dissatisfaction.
- Recommendations: Establish realistic standards for performance and accuracy. Adopt a more flexible approach toward oneself and others. Prioritize task stages and avoid excessive perfectionism on unnecessary details, while focusing on meeting the timeframe for task completion. Effective communication with them is best achieved through "thinking" or "feelings" communication doors.

5. CONCLUSIONS

Based on the analysis of the summary results from all 107 student respondents, it was observed that the dominant Working Style exhibited by most students is After. Please others is dominant Working Style followed by a secondary, Be Perfect. When considering the results, the following conclusions can be drawn:

- The students demonstrate proficiency in maintaining harmony across various spheres of activity, including interpersonal interactions, work organization, time management, and teamwork. This aligns with the nature of their future profession as engineers, who strive to enhance the quality of life.

- The presence of essential characteristics required for an engineering profile is noteworthy, such as analytical and data processing skills, research abilities, planning expertise, design capabilities, testing aptitude, and the development of operational methodologies.

A general recommendation for current and prospective students is to carefully consider their interests, desires, abilities, and skills when choosing their profession. The findings of this research provide additional insights and opportunities for innovative enhancements to current curricula and teaching methods. They also offer valuable information about the appropriate target groups of high school graduates and potential candidates for the institution, which can be utilized in future activities and integrated into the faculty's strategy. While the results may vary across different educational institutions, they contribute to broader analyses and research in the same field.

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