

# The Metacognitive Motivated Strategies for Learning Among Technology and Business Students'

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## ABSTRACT

The study reports technology and business undergraduates ( $n = 76$ ) Metacognitive Motivated Strategies for Learning traits using Motivated Strategies for Learning Barometrics (MSLB). The study evaluates the MSLB model's reliability and validity and discusses its results. A strong MSLB is associated with achievement-engagement in periodic-liveliness to capture learning evidence to address features that facilitate learning flow forming (motivated) Learning Beliefs (LBs), and utilizing various Self-Regulated Strategies for Learning (SRLS) to achieve set goals from which the research questions (RQs) were founded. The RQs are at what level, association, and context of the MSLB-core characters relate with existing validated indices. MSLB's Endogenous Latent Variables (ELVs) tested construct and composite validity. The Factor Analysis with Principal Component Analysis showed mediocre Kaiser-Meyer-Olkin without altering the ELVs-structures for dichotomous MBs and SRLS. Weaknesses indicated two meaningful discoveries for further analysis visible in the descriptives and cross-correlation (R-structure). Each Average Variance Extracted (AVE) surpasses comparable values for some R-loadings. RQ1 resolution examined descriptives for MSLB-domain in Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS), leaving RQ2 on the one hand. The comparison showed strong R ( $\geq .980^{**}$ ) for SE and ( $\geq .975^{**}$ ) SRLS-sum, leaving connections evidentially strong. On the other hand, RQ3 addresses the AVE-thematics by squaring R-loadings. The study reveals considerably high MSLB's ELVs, of which AVE was mostly ( $> .5^{**}$ ). The exciting angles appeared in students' MBs as anxiety about tests and SRLS methods. The ELVs were finally elaborated for the cause-and-effect bias connected to the present theories. Students learned the connection between anxiety about taking the tests to surpass boredom, and failure. Still, they indicated that they are not having or using various coping methods. The study suggests effectively excluding detrimental mastery-avoidance achievement goals; motivated strategies towards mastery achievement require at least more learning methods for coping in academics and working life.

**Keywords:** Motivation Beliefs, Self-Efficacy, Intrinsic Value, and test Anxiety, Self-Regulated Learning Strategies, Strategy Use, Method, linear regression, path analysis

## 1. Introduction

Motivation Beliefs (MBs) are considered human subjective beliefs on solving and mastering ambiguous situations. Learner's having an awareness of the subject-specific matter and availability in setting high ambitions of achieving something appearing raised strategic mentalities for the learning processes, educated performance, and precision when assessing the

differentia of learners' performance in comparison to learners' who lacks competencies cognitively (adapted Voica et al. 2020 cited Bandura 1978). High-performing learners with various creative strategies create a dichotomic plane of differentiating how learning beliefs are perceptualized and formed. On the one hand, inferior self-efficacy associates resulting insufficient resolution in the creation of learning artifacts and occurs as low self-esteem supporting negative thoughts in individuals' intrinsic values by reducing learning development and goals. On the other hand, raised self-efficacy reasons ambiguities and overtook them by highly performing using a substantial number of competencies, accumulating intrinsic values by actively learning, utilizing various learning strategies and methods to achieve goals – resulting in successful academic achievement creating desired artefacts from the artificial creation learning process.

Segregation into specializing motivational system is definable in many ways, and the most classical is to segment it into extrinsic and intrinsic (read more Heilala 2021). Motivation is an intrinsic event within the human brain sparking glial cells that bless individuals to strive hard daily, appearing as high achievement-mastery-engagement in the learning environment with adequate growth mindset supporting solving ambiguous sorting the way out of uncertainties to fundamental goals. This way, daily intrinsic requests control individuals' daily life's rhythm orchestra is strongly related to motivation that justifies all the requests. Fixation into ambiguous situations shows individuals' adaptive growth orientation with full autonomy of personal discretion, preference of choice reaching out of curiosity is picking the opportunities (Voica et al. 2020 adaptation cited Reeve 2015; Pink 2011; Bandura 1994 combined with Heilala 2022ab.)

When we consider this electrical-chemical-reaction occurring inside the learners' brain and pushing self-efficacy within and for motivation, we see the relationship as two-way if we lower the standard of Self-Efficacy. Otherwise, unlike others, the structural path between these two concepts is singular. Employed beliefs on performance or mastery goals on intrinsic or extrinsic (e.g., Heilala 2021; Heilala 2022ab) on Self-Efficacy. Thus, reciprocity of Self-Efficacy on motivation is confirmed by augmentation in the learning process on gaining more and more motivation in the hunt for new learning artefacts. With the return signal feedback, the perceptual motivational cycle becomes more and more evident for establishing a revolutionary and incremental process, acting as an ultimate enabler in raising self-competence viewed as evolutionary efficacy. (Combined adaptation Voica et al. 2020 & Heilala 2021; Heilala 2022a.) Evolutionary, incremental innovating demands ambiguous uncertainties to occur, emphasizing correlations between present awareness and arising these innovativeness states. Innovating mindset relates to learning and its generations (adapted Voica et al. 2020 cited Pekrun & Stephens 2012) generated from cognitive learning-based qualities of cognition information processing (adapted Heilala 2021; Voica 2020 cited Muis et al. 2018; Pekrun et al. 2020). With this prevailing sailing through motivation, let us move on, looking more closely at what was aroused.

This study compiles and analyses undergraduate students' Motivated Strategies for Learning (MSL) personal development levels using a mixed-methods approach. Each response must be examined concerning explanatory variables on motivating learning context to review the purposefulness of individuals learning based on their responses. Design converges quantified information into qualitative information striving to explain and seeking support for biases. The quantitative part captures Motivated Strategies for Learning (MSL) signals among undergraduate students and is analyzed with versatile discriminatory methods. The scale of the

MSL is popular and considerably used in empirical studies (Artino 2005). After the dawn of the Internet, as Heilala (2022b cited Lavonen 2020 adaptation) claims, numerous education headquarters have employed online-based survey arrangements for the MSL to set up an essential assessment for the education setting (ibid. cited Duncan & McKeachie, 2005). The MSL instrument holds popularity within the psychological championship arena in addressing the spirit of inspirational motivation and its consequences on learning techniques used in mastering specific goal settings worldwide (see, e.g., Phillips & Crede 2011; Duncan & Pintrich 1996; Garcia & Pintrich 1996; Feiz *et al.* 2013; Bin Dayel *et al.* 2018; Rao & Sachs 1999). Generally, educational psychologists are pleasantly refining the hypothetical academic constructs willing to generate their incremental innovativeness within the scientific output, raising creativity between- and within inspirational motivation domain by implementing interventional studies on discussing MSL interpersonal preferences in various educational contexts, e.g., case studies in the field of Cognitive Computing (see Heilala 2022b; Duncan & McKeachie 2010; Artino 2005 cited Duncan & McKeachie 2005). Scaling MSL as tautological repetition identifies struggling learners' in any context and provides information for equal learning, providing reasons for additional learning support for those having disabilities (as Problem-Solving Heilala 2020c cited Lokkila 2015 context on computing). MSL is an extraordinary measure to assess learners' motivation and self-regulated learning skills.

Following the analyses, As might be expected, monotonous talklets on the results indicate that the development of Motivated Strategies for Learning (MSL) in adolescent students is still partly in progress, indicating medium reflection on personal preferences on learning with the assessment of strategic approaches. The study will indicate that individuals have, on average, a positive principal perception on the Motivation Beliefs (MBs) side. In contrast, the trial indicates that learning patients disagree with having anxiety disabilities. Eventually, anxiety excludes success, so the study introduces detrimental (Read Heilala 2022b for more). Another side of MSL emphasizes Self-Regulated Learning Strategies (SRLS) advanced on learning, that is indicating innovative individuals for strategical mentalities, but dear respondees imply disagreeing with having methods, i.e., a fundamental toolkit for learning that justifies applying learning-to-learn (L2L) perspective carefully into this domain from primary school onwards (for unique L2L considerations, read Heilala 2022b). Thus, discriminating individuals by their preferred L2L-preferences as existentially as MSLQ measures, the study considers how next-generation critical learners' motivational perceptions can be classified into top-down combined sequentially related clusters. The study brings the MSL phenomena down to an understandable level for anyone to interact meaningfully with it. Each level represents each enumerate that characterizes the results relations and centrality. At this point, the study expects the reader to rise even higher but to focus qualitatively on the specific perspectives to which the research relates. Thus, the study aims to review MSL from a broad spectrum of lenses. Crossing subject boundaries, as usual, e.g., the perspective of lifelong learning, is a crucial indicative framework for forming learning beliefs (read Heilala 2021) as a lifelong process. Thus, this research seeks to understand students' underdevelopment or developmental disability bias from Motivated Strategies for Learning (MSL) perspective. The study builds and proposes a framework for enhancing support for indicating pains for domain-specific manipulable (subject to change) areas, and let us begin.

Motivated Strategies for Learning (MSL) is studied by measuring individual self-assessed capabilities by combining qualitatively dialectically perceived capabilities. First, the research proceeds theoretical framework by connecting latent tendencies entities for domain-specifically on Motivated Strategies for Learning (MSL) latent variables: Motivation Beliefs (MBs) and

Self-Regulated Learning Strategies (SRLS) models. On the one hand, Motivation Beliefs (MBs) are investigated by combining trichotomous variables: Self-Efficacy (SE), Intrinsic Value (IV), and test Anxiety (AN). On the other hand, Self-Regulated Learning Strategies (SRLS) are combined by totalizing dichotomous Strategy Use (SU) and Method (ME). Learners should have learning capabilities automatically (Heilala 2021), which depends more on how the learner utilizes the chemical computer and its computing power positioning on individuals' heads inside the skull (discriminate either mastery or detrimentally oriented learner as Heilala 2022b recommends). Thus, specific matters and perceptual levels in goal-oriented performance either by aiming at growth weights how learners approach the goal. When it is essential to strive better, learners have valued the offering either intrinsically or extrinsically, while everything construed from extrinsic is always internal. Intrinsic competencies are measured with self-efficacy enhancing capabilities to acknowledge their competence, combined with intrinsic as the unlimited performance for considered tasks. However, a relatively fixed mindset appears as anxious burn-out-likely amotivation, i.e., disability to learn, indicating that learning will not be associated with the subject interacting with the specific matter by utilizing various strategies avoiding or self-handicapping, such as taking memos or drawing spatial mindmaps (or being unable to act as a counterpart).

Second, the study approaches the measurement of Motivated Strategies for Learning (MSL) from an empirical perspective. The measure was a barometric opinion survey. The study processes 76 students' survey responses with over two statements per topic. The student responded by choosing a number between 1 and 7. Number one (1) meant disagreeing, four (4) were neutral, and seven (7) ultimately agreed—the data collected in the fall of 2020 and the spring of 2021 during the corona pandemic. The instrumentation used was having the empirically validated framework of (consider acquaintance in Pintrich's books). To precisely compare matured undergraduate students' Motivated Strategies for Learning (MSL) has been at the time of measurement. The methods examined the levels of content reliability, measured latent variables, and discriminated dichotomously Motivation Beliefs (MBs) and Self-Regulation Learning Strategies model variables; correlation charges between variables; and discriminant validity.

Third, empirical results extracted findings that review the Motivated Strategies for Learning (MSL) characteristics. The first (1) research question suggests that the sample represented, on averagely, somewhat slightly positively for Motivation Beliefs in terms of Self-Efficacy (SE) and Intrinsic Value (IV). Still, test Anxiety (AN) had a bit damper tone, and Self-Regulated Learning Strategies (SRL) utilization was somewhat positive for Strategy Use (SU) but negatively overcoming for Method (ME) perceptual preferations. The variables had a somewhat regular scatter in perceptual levels on self-assessing on MBs and SRLS. For the first, Self-Efficacy (SE) and Intrinsic Value (IV) were implied to be negatively skewed on the distribution edge, but test Anxiety (AN) was a positively angled distribution. For the latter, Strategy Use (SU) was slightly negatively skewed. The surprising positive overcoming for Method (ME) was expected that is fascinating measurement and on the overall model path that was precepted meaningfully, skewing peculiarly.

Prickly positive characteristics were indicated for AN and ME-related, and an interesting connection was examined. Surprisingly, the kurtoses for each measurement were cheerful and made the sample enjoyable to examine. It was investigated whether individuals had Motivation Beliefs (MBs) feeling to utilize their willingness with Self-Regulated Learning Strategies (SRL) to achieve mastery or declining learning on specific subject matters. Motivation Beliefs (MBs)

were arranged averagely positively for Self-Efficacy (SE), Intrinsic Value (IV), and test Anxiety (AN) and Self-Regulated Learning Strategies (SRLS) in turn explained by their latent connections, Strategy Use (SU), and Method (ME) very meaningfully positively. AN and ME indicated the most negligible variation in both top-down models, partially explaining the top model features. The second (2) research question approached the regression coefficients of the factorized model that we examine in the discriminatory part. The model revealed the magnitudes of the factor loadings as correlation magnitudes were above the general limit. The separability of the ratios was above the acceptance level for the model. The third research question looked at the same correlation magnitude squared we aroused in the second (2) research question a little above. From the discriminative validity theme perspective, the study's low variance analysis results for the Motivated Strategies for Learning (MSL) model were created, so some near invariance was found per AN and ME. Regretfully, overall, Motivation Beliefs (MBs) indicated slightly less. Self-regulated Learning Strategies (SRLS) indicated slightly strongly positive outcomes overall (whether the good is as reasonable measures invalidated frameworks show, but in terms of meaningfulness and raising curiosity, the model is good), severe shortcomings for the Motivated Strategies for Learning (MSL) mean variances in the model's positive favor for most of the variables (whether this is good for its discriminative validity, the appearing frameworks do not decline the tremendous substantial amount of variational resolutions, which shows that there might be some learning gaps in students' learning beliefs considering their skills and attitudes as Heilala (2022b) concluded. The results are statistically meaningful, and from them, it can be concluded that the effects exist and explain part of the variance of each interesting measured phenomenon—Sparks debate whether they should not relate to each other and why. The Motivated Strategies for Learning (MSL) Latent variables are combined at the highest level as a third question result. Both Motivational Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) models' variables were set to investigate variances from the top level, occurring explaining for more than half of the sample (extraordinary high actually).

Fourth, the study discusses the distribution of factors and the study's limitations, which continues from the analyses section. The study examines suggestions for improving the characteristics (errors) experienced in the top-down-focus of the Motivated Strategies for Learning (MSL) in where explanatory qualities of the analyzes for the Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) variables mentioned above indicate being a crucial part in the overall model. Highly aimed MSL sum variables indicate strong attitudes toward developing and performing in the delivered course, indicating that content and teaching left and affected in creating more likely more positive attitudes and personalities than negative because the teacher as a pedagogical leader is required to support students studying for higher education, as higher education must provide clients with access to a better life to fulfill their promise of teaching and leadership (Adapted Heilala 2022b). Paper overall combines motivation beliefs framework for the great higher educational context the innovativeness aspects between Motivated Strategies for Learning (MSL) latent constructs that are positively realized, in the contingent structure, with statistically significant loadings between variables to see the overall picture made on the measurement time, during unprecedented pandemic leaving meaningful memories in history. Finally, compiling the results derives new lines for future research. The current study indicates that other studies (Heilala 2021; 2022ab) on research inventory clarify the trials' subject-specific angles on suggesting further studies.

## 2 Motivated and Self-Regulated Learning Strategies

Learning-to-Learn (L2L) belongs to Cognition Awareness of the proficiency and gameness to perform and commit oneself to intellectually demanding missions utilizing a tremendous substantial amount of motivation and strategic magic in utilizing its toolbox that is categorized into logic, mathematical, and cognition streams to define the domain-specific mastership estimated to be needed in the twenty-first-century domain (adapted Heilala 2022b cited Vainikainen & Hautamäki 2020). To enter the L2L traversing world, the Motivated Strategies for Learning Questionnaire (MSLQ) measurements must be covered. MSLQ has assessed the learners' motivation and learning strategies in a particular subject at various educational levels (developed by Pintrich et al. 1990). Hundreds of researchers investigated the motivation phenomena multi-nationally on specific samples, raising meaningful case studies and opening for comparisons. Instead of teaching working life, learners need the motivation to cope with problems in working life, must be strict Problem-Posing (PP) attitude and motivation to master Problem-Solving (PS). To this end, we will look at how learning engages motivation and learning strategies to form motivated learning strategies. (adaptation into Pintrich & De Groot 1990.)

### 2.1.1 Conceptualizing Motivated Strategies for Learning Barometrics (MSLB) and Latent Competencies

Motivated Strategies for Learning (MSL) means abstract level consists of multi-dimensional nature of motivation considering most essential factors, cognitive, social, hedonic, and functional approaches to achieve mastery in entry attributes given in table 1 (Heilala 2021; applied from Pintrich & De Groot 1990). The Motivated Strategies for Learning Barometer (MSLB) are developed to measure top-to-down, meta-level, social cognitive angled Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) to conclude gaps, virtues, and areas for development so that learning organization, i.e., students, and teachers, can learn from the signals from the class how the cohort has succeeded in testing the application of willpower to the content being learned. Modeling a trial of cohorts' perceptual motivation levels connects directly to individuals' abilities in autonomous (i.e., utilizes SRLS) learning and predicts increased interaction within the learning environment on learning content and socially (Artino 2005; Pintrich & De Groot 1990; also, e.g., Heilala 2021).

*Table 1: Motivated Strategies for Learning (MSL) questionnaire assessment instrument content. endogenous variables were formatted as represented in chapter 3.4.1 Factor Analysis indicating related latent characteristics (compiled from reference frameworks; Artino cited Eccles & Wigfield 2002; Pintrich & De Groot 1990)*

LATENT COMPETENCIES	Abbr.	Explanation
<b>Motivation Beliefs</b>		
	MB	Creating a goal-setting by stimulating various domains of the cognitive, social, hedonic, and functional domain
Self-efficacy	SE	Eagerness to interact to execute an assignment acts as an enabler for learners' premises using their capability.
Intrinsic Value	IV	A weight associate retains learners' ideals and premises about the meaningfulness and claim of the assignment.
Anxiety (test)	AN	An affective feature, which possesses learners' inspirational responses to the assignment.
<b>Self-Regulated Learning Strategies</b>		
	SRLS	Achieving goal-setting by taking learning on utilizing metacognitively, motivationally, and behaviorally active strategies and methods
Strategy Use	SU	The setting persistent mental model for approaching goal using all language-based interaction for learning
Method	ME	Language-based learning involves reading and writing aiming at speaking and listening

Because of the recap and enhanced memorization, we will now go through the following latent skills: Motivation Beliefs (MBs): Self-Efficacy (SE), Intrinsic Value (IV), and test

Anxiety (AN); *and* Self-Regulated Learning Strategies (SRLS): Strategy Use (SU) and Method (ME) that both top-levels are converging to global Learning-Related Beliefs domain-specific entity in Strategizing Learning Mastery. Supporting entry view through the core Questionnaire lens considering core attributes to be investigated next.

## 2.2 Motivation Beliefs (MBs)

The visionary framework for reviewing learner motivation acclimates to a known expectancy-value for Motivation Beliefs (MBs) model (Pintrich & De Groot 1990 cited Eccles 1983; Pintrich, 1988; 1989). The instances that are submitted into Self-Efficacy (SE), Intrinsic Value (IV), and test Anxiety (AN); that of these three motivational elements are linked in different domains of Self-Regulated Learning Strategies (SRLS):

1. An expectancy component includes students' beliefs about the toolset of abilities to perform a task.
2. A value component includes students' goals and beliefs about the importance and interest of the task.
3. An affective component includes students' emotional reactions to the task. (Pintrich & De Groot 1990.)

### 2.2.1 Self-Efficacy (SE)

“The expectancy element of learner motivation has been conceptualized in various ways in the motivational literature (e.g., perceived competence, self-efficacy, attributional style, and control beliefs).” The initial qualitative concept entangles learners' premises in executing the responsible assignments showing performance of individuality. Diverse factors of the expectancy component bear existed correlated to learners' meta-level awareness, utilization in Motivated strategies for Learning (MSL) as will be combined in *chapter 2.3*, is explained with the administration of measure of effort. (Pintrich & De Groot 1990, 33.)

Widespread scientific domain suggests that the segment of learners believing being capable attaching in meta-level are more likely to have competencies enabled to utilize cognitive learning strategies strongly as well as showing a more incredible substantial amount of persistence in daily investing time with capabilities at an assignment compared to learners not having perceived to perform the given assignment (Ibid. suggested to see explaining frameworks Fincham & Cain, 1986; Paris & Oka, 1986; Schunk, 1985). "If nothing has been done to influence the meta-level, new behavior will quickly disappear once the instructional context is withdrawn and students resume meta-level management on their behavior" (Dean & Kuhn 2003). Meta-level achievers are often learners who have the compressed understanding of the great extents, but without correct converging from extensive to special ones, managing one learners' assignments (in work, school, or daily routines) is not show the substantial amount of skilling that is viewed as capability gap in learning (adapted Heilala 2021). Thus, solving the expectancy component entangles learners' responses to the formable inquiries, as one generalization "am I able to complete the reading assignment" (Adapted Pintrich & De Groot 1990) with "?" or "!!" we can read two different meanings, which emphasizes that thinking is the critical element in the transfer of learning (adaptation into Fisher 1998 early childhood metacognition development). Meta-learning is usually perceived as child learning, so it is one of the most controversial areas to argue, as a generalized approach, when someone has low or high centeredness appearing in their personalities. If that is affecting what is explainable, educators may press the force in which situation the emphasize from the learners' input clarifies that the self-esteem of personality has changed the intuition so well that it sustains and escape

is impossible (combination of Heilala 2021; 2022a), and not many educators can affect into randomness who have no purpose in life. For the Self-Efficacy (SE) component, what it requires, instead of the educators' encouraging, high-self-emphasizing narcissistic traits, growing SE is like going into itself and growing its spine by looking into the abyss.

### 2.2.2 Intrinsic Value (IV)

The value component of learner inspiration relies on many constraints where the motives and actions spark up. The classical way to put the resources is to consider Motivational System division in intrinsic and extrinsic as a part of human processing (Heilala 2021). Thus intrinsic side especially concerns learners' objectives, i.e., the goal setting and strategies for achieving the charge, which emphasizes beliefs on the essence and curiosity for reaching for the either extrinsically or intrinsically attractive meaningful matter (combined Pintrich & De Groot 1998; Heilala 2021; Heilala 2022b). The goal-setting can be a dichotomously excellent or bad thing and something in between - the emphasis is always on being the best for everyone's best without exclusions. Considering that the intrinsic value can be constructed in various ways, we also deal with various learners' who have the motivation and discipline. Still, there is always uncertainty in how well motivational sides ultimately affect the individuals' decisions because it is known that education does not need to use premiums for the customers to learn and to be happy. Still, there is probably no customer within non ergonomically transferring learning facilities due to low demand for doing something with people who are mastered in their way but maybe does not remember much about learning what the most critical pedagogical principle in giving meaningfulness to the content and learning itself if it is performatively led is. The setting goal at intrinsics relates to individuals' variational performance outcomes in learning and performance goals. Gaining knowledge to make money is another classical input for viewing a person with extrinsic while gaining knowledge for satisfaction in mastering meta-level latent structures for stretching- and reaching-out curiosity for daily routines enjoys a high degree of intrinsic side diamonds-alike learning, which includes matter value that gives something in instead of out, which component practically involves learners' motivations in taking first key-strokes or desires to approach towards either way modeled exciting goal. Pintrich & De Groot (1990) put the argument in that way, "what are students' motives answers to the question" viewing from multitude view: what added-value the duty is giving to the learner.

"The research suggests that students with a motivational orientation involving goals of mastery, learning, and challenge, as well as beliefs that the task is exciting and essential, will engage in more metacognitive activity, more cognitive strategy use, and more effective effort management" (Pintrich & De Groot 1990 suggests Ames & Archer 1988; Dweck & Elliott 1983; Eccles 1983; Meece et al. 1988; Nolen 1988; Paris & Oka 1986). Without forgetting the detrimental beliefs that are related to goal-setting from the approaching perspective, in which mastery-orientation changes mastery-avoidance that appears when learners' may be unable to act, i.e., amotivated to reach the educator subject-specific matter and cancel the incoming inputs by various defensive methods (combined Heilala 2021; 2022b)

### 2.2.3 test Anxiety (AN)

The harmful components are invented for degrading growth mindset (as Heilala 2022ab beliefs), which is logically also ending-up evolution of human beings, affecting specifically in anyone's motivational sides either positively or negatively, in plain language. i.e., if a typical human learner hasn't read the examination material beforehand, the individual will probably feel uncomfortable in a unique way while taking steps forward burn-out (ibid. adaptation).

Thus, to find ourselves out of the box, there is an explanatory dimension to delve into, as the motivational segment interests learners' cognitive stimulus-and-response in multidimensional levels from a narrow spectrum. Pintrich & De Groot (1990) suggests a model that positions human needs hierarchically from affective or emotional needs to upper top, in social. The reactions to the assignment would be most potent by applying cognitive and conative time-series approaches to modulate and modify the outcomes. Still, if learners' are too not like evolutionary predators for innovating with new knowledge, the ancient knowledge learned from school becomes obsolete. The sound of a learning gap entangles as "How do I feel about this doable assignment?" (adapted Pintrich & De Groot 1990).

Educating acts enabler for influencing pedagogically working as a sparkling method in refining followers' thoughts as affective responses. Such as irritation, dignity, regret, but measuring anxiety-related to examination appears to have critical emphases for motivated learning strategies (Artino 2005; Pintrich & De Groot 1990 cited Wigfield & Eccles 1989). Learners' generally have incremental learning capabilities if attitudes will not angle toward disabilities that are detrimental on believing being incapacitated on some given assignment, i.e., losing perceptual awareness on competence (as Pintrich & De Groot 1990 cited Nicholls 1976 outputs) that means-ends are occurring as tension relating to low-abilities-related-perceptions, which emphasizes self-efficacy on decreased utilization of spatial space of memory, instead of its greedy motivational use, in which humans models all experiences together (e.g., Postma & Koenderink 2017). Mean-ends Problem Solving (PS) establishes the alertness of intentionally reaching for academic and working life success with substantial motivation for goal-directed activities utilizing various learning strategies rapidly within a specific time-frame (when possible to impact). The successful trials indicate success rates related to how individuals position themselves to achieve the goal. Human learners 'have completed different trials since born, and the process of perceiving something new, as preparing for examination requires, without exceptions, a certain amount of time of utilizing visuomotor, hearing, or oral processing at looking into the yet non-existing learning abyss and taking some time with re- and memorization for most complex structures essential for preparing for the examination to modulate into means-end causation for successful PS. Learners' perceiving anxiety can be obsoletely still oriented for mastery because active exploration can allow the so-called trial-and-error process, which allows learners 'to reduce behaviors and unlikely factors that do not lead to the desired goal, by noticing objects' ending attainment and angling behaviors in the direction that are resulting from a positive shift from non-goal-oriented behavior to predominantly goal-directed, that is always expected if the learners 'are motivated enough to exclude enough constraints that are disabling the achievement-success. (Early Childhood Adaptation from Babik *et al.* 2020 combined with Heilala 2021.) Thus, both theoretical and empirical information has break-even point for validation of how domain-specific students utilize their meta-level cognition mental approaches and are managing their process, that is viewing as high connections due to learners can perceive both low-or high anxious mental health and seem as effortful and persistent in both cases (as Pintrich & De Groot 1990), that results in inabilities or disabilities and has to be discriminated by adding measurements for raising learners' self-development by educators' added awareness (Heilala 2021). However, it is very typical that highly anxious learners are very likely to have disabilities for not being awake, constant, and likely detouring complex assignments (Pintrich & De Groot 1990 suggested Hill & Wigfield 1984).

## 2.3 Self-Regulated Learning Strategies (SRLS)

Humans' cognition setting of self-regulation and orientations are paramount in learners' Teaching-Studying-Learning (TSL)-Process expecting studious execution appearing as strong interaction within the learning environment (Heilala 2021; Pintrich & De Groot 1990 cited Corno & Mandinach 1983; Corno & Rohrkemper 1985). The qualitative concept space for learning-environment connotations has raised awareness of Self-Regulated Learning (SRL) in meeting qualifying criteria for next-generation learners 'of coping with the constantly changing environment requirements of both technological and business aspects – in new market environments that teachers are constantly simulating it in classroom conditions. “Learning is the input modality“, which is recognized and separated from communication which is “output modality“ (Griffiths 2004). Self-Regulated Learning requires learners 'to press the information tightly into the (meaningful memorization, i.e., view it as active learners' utilizing "metacognitive strategies for planning, monitoring, and modifying their cognition" (ibid. ).

The Self-Regulated Learning Strategies (SRLS) domain, on the one hand, is founded over learning organization learners' (both teachers and students) managing and regulating classroom atmosphere by different constrained factors, such as classic classroom example indicates: are some learners blocking and ignoring distracting classmates for example for better learning modulability conditions using various *strategies* and *methods*. On the other hand, strategies refer to the L2L framework in learners' mental strategies focusing on learning, i.e., this context meaning abilities, to recall, comprehend and apprehend the domain-specific atmosphere environment of the pedagogical content, i.e., material, for instance. Learners may elaborate various strategies and methods in pursuing learning artifacts: rehearsal, magnification, and executive techniques in convergence that have been found in fostering mental attention and connecting positively, offering higher levels of accomplishment (Combined Heilala 2021 and Heilala 2022ab with Pintrich & De Groot 1990 cited Corno & Mandinach 1983; Zimmerman & Pons, 1986; 1988 and Weinstein & Mayer 1986).

Thus, we have so far two components: Strategy Use (SU) and Method (ME) in Self-Regulated Learning Strategies (SRLS) connecting with the Motivation Beliefs (MBs) setting constitution for Motivated Strategies for Learning (MSL). It is emphasized that awareness for mental and meta-level cognitive strategies is not sufficient in promoting Mastery due to contamination of the Avoidance Orientation (AO1) component, among others (see Heilala 2021 and Heilala 2022ab for more). (With Pintrich & De Groot 1990 cited Paris et al. 1983; Pintrich, 1988, 1989; Pintrich et al., 1986 as back up sources.) Thus, combining Self-Regulated Learning Strategies (SRLS) with other reference frames grants request to measure how the strategies and methods are used cognitively (Ibid.), and thus the information reflects on how the management of effort is implied in the totalizing variable, that is, how motivation could enhance the strategy use towards learning, consequently what is the role of self-regulatory to creatively end up having fuller academic performance (adapted ibid.)? Let us review these enabler-acting components.

### 2.3.1 Strategy Use (SU)

Motivated Learning Strategy relies upon the learners' different cognitive and metacognitive strategies (Pintrich *et al.* 1991). Different learners ought to have characteristical traits that often emphasize individuality and some nonsensical contexts used stereotypically. Utilizing strategies is not more about personality, but it is not either effortless and far from explicit. Personality has a strong influence on the way students utilize strategies in learning, but the

effect of motivation in creating various strategies is more weighted. Secondly, career decisions significantly affected utilizing verbal learning strategies that researchers suggest can appear due to high motivation. It has been studied in comparable studies (e.g., Griffiths 2004 cited Griffiths & Parr 2000) that EU nationals students utilizes language-based learning strategies significantly more frequently than other nationalities. Language-based criteria consists of understanding pedagogical content vocabulary, reading and interaction with great substantial amount of tolerance in uncertain situations. On the other hand, eastern studies have reported that students are aware of the various language-based strategies, but few appeared utilizing them. (Griffiths 2004.) Thus, Japanese language-based strategies vary on the framework, but, e.g., Griffiths (2004 cited Usuki 2000) for journal-writing-strategy, has discussed psychological barriers resulting as disabilities for learners (e.g., Heilala 2022b) and recommended more interactions among learning organizations (e.g., Nykopp et al. 2019). The increased use of *online environments* as a learning method in universities has led to new possibilities in constructing new knowledge through interaction during writing processes acting as enabler for decreasing learning disabilities. There are several ways learners can be coordinated for collaborative work over online learning environments. Online situations cognizant learners 'are not present as in face-to-face and acts as enablers and disablers for several individuals (ibid.). Even asynchronous managing habitats acts as enabler for real-time synchronous communication (e.g., Heilala 2022; Nykopp et al. 2019).

In online environments, its learners' decision, whether they are achievers or avoiders (e.g., Heilala 2022b), takes responsibility of the coordinator to act as an enabler (e.g., Nykopp et al. 2019) because assessments toward goals act as contingent premium furthermore to assessment, it is likely that even low-level achievers use a tremendous amount of time for getting the grades. Thus, learners themselves decide engagement in coordinated task-related activities as Nykopp et al. (2019) cited Janssen et al. (2012) elaborates, i.e., individuals personally decides to take part in teachers' coordinated social activities, meaning for collaborative discussion where learners can take part and utilize collaboratively learning strategies, in which process is (both self-aware and other learning organization) monitored, as well as evaluated on reflection of what had happened during collaboration. Studies found that learning organization systems with emphasized strategical method applies in regulation in collaboration tasks, such as revis(it)ing and assessing group performance, achieved averagely stronger than those who did not utilize agile methods (adapted Nykopp et al. 2019 cited Janssen 2012), reminding a lot a Scrum method used in agile Service, Software and Hardware Developmental processes weighing more its beneficially strategies for the learners to be utilized for accelerated learning.

### 2.3.2 Method (ME).

For years, many methods and approaches have been developed to teach and learn different communication for the learner. It has been found that students are probably not using learning strategies if learning had little or no time spent with the fundamental language issues, such as by-word-method: studying meanings for the unknown entities and words appearing, e.g., in international language studies. One of the know methods is the "Army Method," developed as a reaction to war-time demands, known as a rigorous audio-lingual method whose goal was to educate fluent speakers of languages (ibid. Richards & Rodgers 1986). The method differentiates from the by-word learning method because it involves speaking and listening, which is argued to have more weight before reading and writing (ibid. cited Richards et al. 1992). Thus, aiming at reading and writing learning methods responds to so-called literary circles that have become more common later in the 21st century enabling more flexibility from

childhood schooling (e.g., Aguilar 2010) to early adulthood university-level (Levy 2011). This leads to utilizing the journal writing method for learning as introduced in the Strategy Use chapter, which bears the mental barriers that learners' may have intrinsically developed acting as disablers in learning (adapted Griffiths 2004 cited Usuki 2000).

Detrimental barriers are achievable by utilizing various techniques in supporting methodical writing processes by conducting statistical baseline surveys providing direction for internal learning management by learners' self-assessment, which will arrange the learners' pedagogical requirements. A habit of going through the results with the students systematically enhances students' understanding by responding to the statements. It is justified to specific needs with arguments of specific support among statements. Otherwise, the agile-learning methods are weighted from the full neural abilities spectrum. First, reading can be justified by requesting to recall all the written practices and discussing with this enumerated contextual space creatively by drawing mindmaps because outlining the big picture is the most important because when the learner sees it, it can extend the curiosity and reach learning to the root causes of the issues. By converging methods from reading to the discussion, it is necessary to consider literary circles because only authentically discussing written and recalled interests will leave profound imprints and feel relevant and embracing, resembling, and compiling into (subjectively) meaningful learning enhancing interaction (e.g., Heilala 2021). The other end is the so-called rote learning that weights "repetition, imitation, memorization and patten practice to force learning and minimizes explicit use of meaningful learning strategies "(adapted Griffiths 2004 cited Stern 1992). The methodical concept on reading circuits intervals can use both ends for so-called sprint-meetings in agile learning context can be placed in suitable intervals (repetition), and exercising and outputting cognitive strategies among the center ambiguities enhances learners 'to the seek of solutions discussing and connecting entities (ibid. adaptation).

The writing-methods TSL-process factors can be classified for more straightforward structuring, considering individuals' unique individual learning methods by text and verbally flexible. The agile learning process nature requests learners to compromise responding to demand. Some studies profiled typical roles in the collaborative learning process. It is derivable how learners combine and utilize methods and form strategies to achieve beneficial outcomes for goal setting. Collaborative learning enhances the agile learning process role considering other individuals' perspectives (adapted into agile thematics Nykopp et al. 2019 cited Lowry et al. 2004). The *writer's* method recasts written statements to a readable and organized text thus. Responsible actions emphasize awareness using spelling and meta-, mind-, or spatial maps or anything that could recursively compile the phenomena or phenomenon associations. The *consultant* does not compose the text but contributes to opinion leadership (Heilala 2022d) that requires learning and teaching pedagogical leadership activities and encouragement to act so that learners' open up themselves in the classroom and indicate attention control. The *editor* redrafts and modifications compositions as an external expert and remarks on the writing process, which requires awareness of format and discussion abilities to replace, remove, or resentencing some collaborator text into another form, which weights learners' abilities to see the root causes of the written and discussed phenomena. From a supervisory leadership perspective, the conscious *team leader* guides the process-writing gathering through the joint handwriting operation in full-range-leadership activities (adaptation into Nykopp et al. 2019 cited Lowry et al. 2004; Heilala 2022c), meaning that the leading should be inspiring, stimulating, considering individuals' basis and idealized. Weight to the fact that no one's learning process cannot be only dependent on personality or other traits, as individuals have competence for all the roles to be profiled (Nykopp et al. 2019 cited Marttunen & Lauren 2012),

but by returning to the beginning of this paragraph, it is, of course, intrinsically requested for the individual to choose and use the methods to promote learning for mastery. Weights walk the talk for "learning begins with the learner" (Griffiths 2004 cited Nyikos & Oxford 1989, 11).

Finally, the associations between Motivation Beliefs (MBs), Self-Regulated Learning Strategies (SRLS), and various styles of how learners' performance on academic assignments appears are sought considering individual differences and conditions that are implicitly derivated into hypotheses on the research design.

## 2.4 Hypothesized Latent Model

The mediation model for Motivated Strategies for Learning (MSL) was formed and validated earlier by numerous studies in many domains. Origin is positioning at Pintrich & De Groot's (1990) mediated psychometric models measured in the schools. Motivated Strategies for Learning (MSL) approached from the Cognitive Abilities perspective predicted having positive connections into mnemonics and attentive abilities, responding abilities, and visual perception abilities relating in natural and fluidic learning utilizing various coping and adapting strategies (as in Heilala 2021). It tested the indirect effect with path analysis. The top-level machine learning model fit was excellent only pruned and modified oblique model, ( $\chi^2(477) = 892$ ,  $p = <.001$ ,  $\chi^2/df = 1.87$ , RMSEA =.051, GFI =.935), indicating perfect model-data fit. Perfect fitment has been elaborated with a highly influential framework and validated indices. The five-factor oblique model was validated with (Rao & Sachs 1999.)

## 2.5 Research Problematization and Hypotheses

The research questions (RQs) are formed from the top levels and cover the treatment of their sub-concepts. The RQs are at what level, association, and context of the domain-specific Motivated Strategies for Learning (MSL) Questionnaire 5-core characters – "Motivation Beliefs (MBs), and Self-Regulated Learning Strategies (SRLS)" – relate with existing framework model fit indices.

The research hypotheses (RHs) are stated as follows:

*H1: Respondees' latent-domain variations fit the Motivation Beliefs (MBs) model.*

*H1.1: Self-Efficacy (SE) supports the Motivated Strategies for Learning (MSL) model positively*

*H1.2: Intrinsic Value (IV) supports the Motivated Strategies for Learning (MSL) model positively*

*H1.3: Test Anxiety (AN) supports the Motivated Strategies for Learning (MSL) model positively*

*H2: Respondees' latent-domain variations fit the Self-Regulated Learning Strategies (SRLS) model.*

*H3.1: Strategy Use (SU) supports the Self-Regulated Learning Strategies (SRLS) in Motivated Strategies for Learning (MSL) model positively*

*H3.2: Method (ME) supports the Self-Regulated Learning Strategies (SRLS) in Motivated Strategies for Learning (MSL) model positively*

*H3: Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) Support the Motivated Strategies for Learning (MSL) model ultimately.*

Earlier validated MSL studied breakdowns indicate that the expectancy and value elements positively merge the three SRLS segments (Garcia & Pintrich 1990; 1996; Duncan & Pintrich 1996 among others), so there is a connection between MSL and SRLS latent entities. The breakdown resolution on anxiety relating to the assignment given can not propose a very spherical all-around solution on its effect in indicative respects (ibid.). The relations are thus very individualized on the responding group, but the definitive explanation relies on pre-validated theoretical references on its unique constructs. The meaningfulness of the hypotheses investigates the classically strategically motivational side is have sparked within individuals neural activities indicating measures on scales on how potential learners' have perceived to perform.

There is widespread spectrum of raising competencies relating to higher Learning-to-Learn (L2L) components, in which belongs creative learning and motivation completing students' competencies to respond in their experienced perceptual learning environments (Heilala 2021), because "the 21st-century as requiring L2L-competencies to cope through the domain-specific educational level in gamified daily tasks that incrementally raises awareness for enhanced Problem-Solving (PS) causal critical thinking on learning acts as an enabler for demonstrating, as Problem-Posing (PP) (curricular-)competencies." (adaptation from Heilala 2022b cited Vainikainen & Hautamäki 2020). The motivational learning sky above is divine and dichotomously describable either fixed or growth mindset (Heilala 2021; Heilala 2022ab) as a free-form adaptation from conceptual space from the shoulders of (Voica *et al.* 2020 cited Singer 2013; 2015.) Highly motivated learners' set their aims high are related to different learning domains by students' preferations into innovate towards positive Motivated Learning Beliefs (MBs) and *Self-Regulated Learning Strategies (SRLS)* for subject specific-matters, while another end produces growth and other angles toward fixed death spiral (Heilala 2022ab; relating to what Juntunen *et al.* 2020 processed on specific goal-orientation profiles). Thus, supporting MSL on supporting L2L is an essential task for university educational programs considering individualized learning-methods (Heikkilä 2011, 63), and constantly raising awareness on whom we as educators are dealing with, raises adjustments in our reflections as being educator's asymmetric structures, in which must, as overall act as an enabler in transforming learners' daily tasks into individual, (yet) dynamical unrealized personal growth (adaptation Heilala 2021; Heilala 2020bc). Self-regulated learning requests balance curricula in the sentences of learners' goal-setting and lifting learning goals into meaningful atmospheres (adaptation Heilala 2021; Heikkilä 2011).

To claim this territory mentioned above, the study hypotheses will measure students' perceptual levels on top-down, from Motivated Strategies for Learning (MSL), to emphasizing samples perceptual levels on Motivation Beliefs (MBs) with Self-Regulated Learning Strategies (SRLS). The subsequent reviewing methodology and analyses justify comparability for given hypotheses and take a position in discussing what can be predicted. Still, with caution on the study, limitations are shown in chapter 3.4 *Experimental Structural Equation Modeling* and the end discussions.

### 3 Research Methodology

The study objective is to form an embedded correlation model from survey-based captured data on the relationships we hypothesized from the famous literature groundings translated and used in hundreds of other nations in their languages. Thus, there are similarities in how hundreds of other researchers have perceived the phenomenon in investigating relationships among angles in Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) on learners' academic performance from various levels of education. For instance, Heikkilä (2011) used Motivated Strategies for Learning Questionnaire (MSLQ) thematics in their studies in Finland at intervals where the subjects had completed primary school and references to forenamed research on that field. The difference here is that this study design does not examine primary school leavers but at least college-aged adults, technology, and business students' about how their mindsets are realized from motivating techniques and performance learning perspectives.

The aim for choosing this globally meaningful instrument as the method was to indicate concerning mindset in how tertiary-level education learners perceive the education and institution itself, but how the measurement as a whole can reveal distinction on levels of personal self-regulation and willingness to administer guiding content proposed by educators, in which presumably affect meaningful learning as well as thousands of other minor signals (combined Heilala 2021; Pintrich & De Groot 1990; Artino 2005 cited *ibid.*).

#### 3.1 Subjects to be Examined

Participants are Anonymous university students ( $N = 76$ ), with an overall response rate of 94.5% divided into two groups. Cohort 1 spectacularly represents students earning a Bachelor in Mechanical Engineering (BME) degree ( $n = 34$ ) with a response rate of 89%, and Cohort 2 represents Bachelor of Business Administration (BBA) students ( $n = 42$ ) with a response rate of 100%. (Percent rate calculated for respondents who have completed courses related to the survey context). According to the combining beliefs theory, the respondents' results converged as one set with equal sum variables, didactics, reliability, and logical representation (Konieczny & Pino 2011).

Due to developmental differences, differentiating learners biologically into boys and girls is often a proposed method (as in Helenius & Tiilikka 2021). The division is also typically made between learners' age due to their maturities in learning performance, indicating strategic abilities in learning (adapted *ibid.*). With this emphasis, studying adults is comforting because they already know how to learn, read, and infer independently of biological orientation. Returning to the division of sampling respondents, there is mixed research evidence between biological orientation and strategy use of learning strategies, which is evident to decline in study design due to its complexity. It is unnecessary to profile anyone by gender. Thus, studies have failed to discover evidence for differing cognition, motivation, and learning strategies between sexes because both have the same abilities in a sense (Griffiths 2004.). Similarly, ethnic origins can be abandoned due to the complexity of using nationalities in research designs. Thus division is unnecessary, and the trials' cohorts' responses are handled as Anonymous and case-specific universal students.

## 3.2 Instruments Used

"The Motivated Strategies for Learning Questionnaire (MSLQ) is a self-report instrument designed to assess college students' motivational orientations and use of different learning strategies for a college course. The MSLQ is based on a general cognitive view of motivation and learning strategies". Motivation Beliefs (MBs) faction consists of 22 items enabling assessment for respondents' goals and value beliefs, competencies to succeed, and test anxiety. The Self-Regulated Strategies for Learning (SRLS) measure the learners' use of different cognitive and metacognitive strategies and includes 22 items concerning learners' resource management. Additionally, there are different numbers of items according to year, author, and Strategy use of the MSLQ versions. (Pintrich *et al.* 1991, 2.)

Motivation Strategies for Learning (MSL) is the overall image of the construct on a specific taught course unformed but formally. It is believed that students' responses to the question might vary from a responding cognizants' pragmatic, realistic, componential, and emphatic accuracy, considering awareness and thus impacts on how the learner interacts at the end of the satellite and modulates occurring response that is also depending on the university, course topics, and teacher. (Adapted *ibid.*, 5; Ickes 2011).

Examples of claims for the following convergent concepts are given: Motivation Beliefs (MBs): Self-Efficacy (SE): "11. I am sure I can do an excellent job on the problems and tasks assigned to this class", Intrinsic Value (IV): "10. I often choose paper topics I will learn something from, even if they require more work ", and test Anxiety (AN): " 12. I have an uneasy, upset feeling when I take a test "; and Self-Regulated Learning Strategies (SRLS): Strategy Use (SU): "28. When I study, I put essential ideas into my own words" and Method (ME): "44. I try to connect what I am about with what I already know." All prior arguments are given in the *Factor analysis* chapter special tabulation. The Research was constructed by applying MSLQ by asking participants to respond to their perceptual levels for a given argument on a 7-point Likert scale, where one (1) = 'strongly disagree' - 7 = 'strongly agree.' The example statements are reported after a few chapters. For understanding questionnaire arguments and structure, read *Table 3—factor loading and commonalities*. The statements can be viewed in the factor analysis table with the statement number. Corresponding categorical variables respond to the endogenous latent variable in the machine learning figure below the top factor, abbreviated to the narrowest entity in the measurable entity.

## 3.3 Methods of Data Analysis

Grounding is quantitative, computerized survey-based and analyses are striven with embedded correlation modeling to gain meanings for the responses and their relations (as Heilala 2021 cited Creswell & Clark 2007 leads). Before anything data hunting, some researchers point out constraining and explanatory variables. Even this does not innovate in the calculations of the enumerated data types (adaptation to Kuusela 2021). For this, we draw a bit more breath after prior sentence, to emphasize that empirical research method requires precise detailing qualitatively to combine quantitative meaning in convergence, as looking at top-down phenomena and synthesizing the learning artifact seamlessly (Adaptation from Creswell & Clark 2007; Creswell 2015; Edmonds & Kennedy 2019). To verify the empirical part, we find ourselves from the boundaries of epistemologies interpreting the ontological dichotomous realism-constructive-combinatorics and assumptions separating subjective and objective matter on how individuals' perceptual beliefs construe over each one's lifecycle from creative interactions (adapted Voica 2020 cited Hofer & Pintrich 1997; Heilala 2021) which emphasizes

how the first thought from the initial seed of action of giving a response in the survey has been perceived indicating the lifelines simulatability and its intangibility by computing and processing these study controlled epistemic assumptions quantitatively considering taking objectively stance in-between positivism and other end antipositivism maintaining the external observer position and objectivity (combined adaptation from Mäntyneva 2021 and Voica et al. 2020 Richter & Schmid 2009) ending up as a meta-level perceptual knowledge in multiversal human cognitions.

Argument -What is knowledge? First, it is to check learning-related complex factual and validation-related qualitative, intrinsic polynomial space (ibid.). Relevance of being concerned in the epistemological interpretation of knowledge on how objectivistic outcomes are is being aware of being connected to the multiverse and being able to understand and reflect on different learners' bearing hardships for solving general ambiguity requests "*cognitive, affective, conative (motivational), social, and behavioral aspects*" (Heilala 2021; Voica et al. 2020 cited Goldin 2017).

### 3.4 Experimental Structural Equation Modeling and Factor Analysis

Structural equation modeling (SEM) and FA can be considered for the study to examine captured and clustered data sampling. For the given reliability values, the data was appropriate to process and tried in the and validated Motivated Strategies for Learning (MSL) model first individually and then combined with both Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) Questionnaire Scales. The chosen analysis method is justified when it provides information on the phenomenas' dependencies and content validity if it is worth the report (Creswell 2015; Edmonds & Kennedy 2019).

#### 3.4.1 Factor Analysis

The sample size was sufficient ( $n > 40$  per variable) for three measurements per concept, as a total of 380-dimensional latent constrained variable space. The dimensional reduction used Principal Component Analysis (PCA) rotation. The FA experiment showed that the sum variables formed a reasonable variance but not a significant substance (Friel 2021, 21). The factor component loading matrix indicates the correlation magnitudes of each latent variable with each factor. As is evident from table 3, the proportion of variance in each factor accounted by the latent variables is not homogenous (same). i.e., the commonality is the proportion of the conflict (as variance) in a variable that accounts for the latent variables.

*Table 3: Factor loading and communalities.*

	1	2	3	4	5	C
2. Compared with other students in this class, I expect to do well	.704					.496
6. I'm confident I can understand the ideas taught in this course	.848					.718
8. I expect to do very well in this class	.889					.790
9. Compared with others in this class, I think I'm a good student	.897					.805
11. I am sure I can do an excellent job on the problems and tasks assigned for this class	.868					.753
13. I think I will receive a good grade in this class	.709					.502
16. My study skills are excellent compared with others in this class	.838					.702
18. Compared with other students in this class I think I know a great deal about the subject	.861					.742
19. I know that I will be able to learn the material for this class	.851					.725
1. I prefer challenging classwork so I can learn new things.		.851				.724
4. I need to learn what is being taught in this class		.789				.623
5. I like what I am learning in this class		.803				.644
7. I think I will be able to use what I learn in this class in other classes		.615				.378
10. I often choose paper topics I will learn something from, even if they require more work		.886				.785
14. Even when I do poorly on a test, I try to learn from my mistakes		.844				.712
15. I think that what I am learning in this class is helpful for me to know		.697				.486
17. I think that what we are learning in this class is interesting		.750				.563
21. Understanding this subject is essential to me		.902				.814
3. I am so nervous during a test that I cannot remember facts I have learned			.749			.561
12. I have an uneasy, upset feeling when I take a test			.883			.780
20. I worry a great deal about tests			.854			.729
22. When I take a test, I think about how poorly I am doing			.719			.518
23. When I study for a test, I try to put together the information from class and the book				.788		.621
24. When I do the task, I try to recall what the teacher said in class so I can reply to the questions correctly				.731		.534
25. I ask myself questions to make sure I know the material I have been studying				.822		.675
28. When I study, I put essential ideas into my own words				.763		.582
29. I always try to understand what the teacher says, even if it doesn't make sense.				.779		.608
30. When I study for a test, I try to remember as many facts as I can				.806		.649
31. When studying, I copy my notes over to help me remember the material				.859		.737
32. I work on practice exercises and answer the end of chapter questions even when I don't have to				.829		.687
33. Even when study materials are dull and uninteresting, I keep working until I finish				.792		.627
34. When I study for a test, I practice saying the important facts over and over to myself				.645		.416
35. Before I begin studying, I think about the things I will need to do to learn				.623		.388
36. I use what I have learned from old homework assignments and the textbook to do new assignments				.718		.515
39. When I am studying a topic, I try to make everything fit together				.798		.637
40. When I'm , I stop once in a while and go over what I have read				.673		.453
41. When I read materials for this class, I say the words over and over to myself to help me remember				.536		.287
42. I outline the chapters in my book to help me study				.578		.334
43. I work hard to get a good grade even when I wouldn't say I like a class				.725		.525
44. When , I try to connect what I am about with what I already know.					.445	.198
26. It is hard for me to decide what the main ideas are in what I read					.612	.375
27. When work is hard, I either give up or study only the easy parts					.699	.488
37. I often find that I have been for class but don't know what it is all about.					.671	.450
38. I find that when the teacher is talking, I think of other things and don't listen to what is being said					.760	.577

Thus, we obtained factorizable fit granting indices worth trying for the model. Numerous frameworks discuss the minimum range for SEM being at (0.2) to (0.6) to be considered removal, but also there is stated that there is no universal framework for cut-off. Considering the small sample and methods, it is worth examining possible novice teacher failures and success (as Tirri & Kuusisto 2019 literature would suggest for beginner educators). Thus, implementation will be reached on a miniature scale. Therefore, the test is valid to process, even it is not entirely fluidic. Hair *et al.* (2017, 40, 128) states that loadings should be above the expected threshold. Researchers frequently obtain weaker loadings ( $<.70$ ) in newly developed scales in social sciences. So, in general, averagely factor loadings smaller than (.4) are considered a generalized boundary for removal when removing leads to an increase in composite reliability. Removal is justified for better content validity. To be precise with establishing convergent validity, Average Variance Extracted (AVE) is considered to be reported to validate if the grand mean value of the squared loadings of the indicators is associated with the factor loading constructs. The lowest loadings are in the totaling variable, located in the Self-Regulated Learning Strategies (SRLS), in latent variables Strategy Use (SU) and Method (ME), which could be pruned. Still, the overall reliableness shows an extreme level to recommend being left as is. As the covariance structure fits the model mediocre, the model converges successfully.

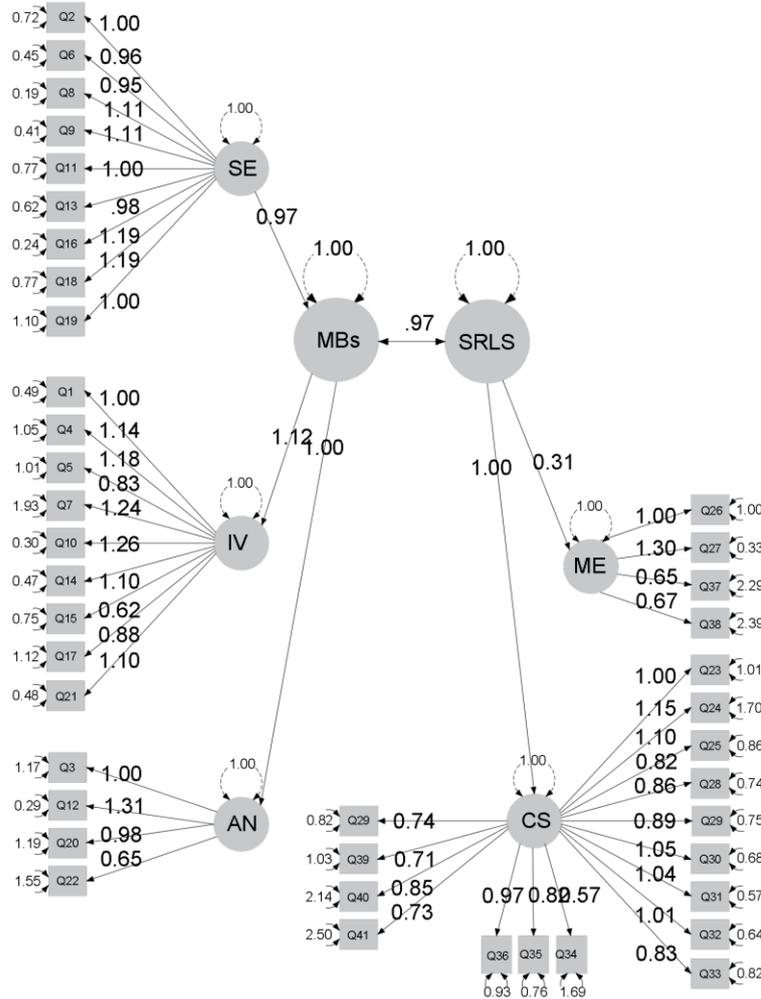
SEM has been used in exploring complex relationships between independent and dependent variables. SEM with CFA tackles a traditionalistic routine to study the modeled standard fit because it acts as an indicative enabler in defining latent variables relations. Investigating enumerates with CFA allows model adjustment to modify indices better if some endogenous variables indicate a good fit. To question, "If a single latent variable had been removed from the study, would it no longer be the same validated metric?" - is responding as pruning a variable due to poor correlation or too high correlation, is acceptable and required to report (Junttila 2022), still depending on the modification's extent and ethics to do so (adaptation to Heilala 2021). Otherwise, it distinguishes factors that do not work. Thus, as a result, pruned factorizing addresses the validation for regression testing, variance extraction, and confidence interval explanation. (Heilala 2021; 2022ab.)

### 3.4.2 Structural Equation Modeling

Here we have the Motivated Strategies for Learning (MSL) traits model connected and validated. The observations were fitted with a machine learning model for the given model. The machine learning model fit was mediocre. The mediocre fit was expected because the small sample size converged satisfactorily and resulted in a barely enough Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy test for the whole model (was .628\*\*), indicating that all variables are adequate for Factor Analysis. This encourages the combination of the entire model illustrated in figure 1.

*Figure 1: CFA 13 first-order factors modeling for context-specific Motivated Strategies for Learning (MSL) personal identities variables machine learning model (n = 76). Rectangularly Single-headed vector-arrows manifest latent variables, and arranged values*

represent factor loadings. All loadings are normalized and statistically valid.



As read from the figure, Motivated Strategies for Learning (MLS) forms top-variables from the polychoric angle. These variables are uniquely structured tetrachoric Motivation Beliefs (MBs) and other, lower-level polychoric Self-Regulated Learning Strategies (SRLS). This self-evaluation barometer used in the figure was adapted from Pintrich validated frameworks measurement scales (Pintrich & De Groot 1990; Rao & Sachs 1999; Artino 2005 cited Pintrich 1993 and Pintrich & De Groot 1990 cited Pintrich et al. 1986). There are some similarities and differences in instruments' compared outputs, so getting acquainted with the frameworks is recommended at the latest. At this point, the analyzed sample size will remind and emphasize that the differences and similarities can not be generalized to a more significant sampling number with current evidence. Thus setting remains a case-specific but commonly investigated phenomenon. Considering investigations as aiming at idealized claim to seek resolution for problematization of a big picture arising in investigations (e.g., Heilala 2021; 2022ab). Nevertheless, considering the majority producing the high factor loadings, observations conclude high factor correlations for the phenomena. As the covariance structure is strongly positive for the given validated instrument, the responded group's very high-quality information is well-felt and responded (McNeish 2018).

Model indices and Barlett's Sphericity Test (significant) for applying factorizing and overall model fit was ( $\chi^2(380) = 2363.406, p \geq .001, \chi^2/df = 12.439, RMSEA = 0.264 [0.236-0.290]$ )

for Top-level hypothesized model fit. There have been controversial scientific discussions about the study sampling that McNeish (2018) argued. The model fit is generally excellent for a well-saturated sample of less than 0.07 RMSEA. Sometimes as low RMSEA is criticized as the opposite for a good model. The general rule is not to factor 0.00 to 0.49 KMO characterized sample as the degree of common variance is too low (Friel 2021). Thus, a model under high factor loading circumstances, even a 0.264 RMSEA model, can be excellent. In this case, the study uses a validated meter, and the factor loads are very high.

Nevertheless, the study argues that the model is slightly error-sensitive, and its forming KMO is mediocre. Mediocre sampling means that the covariance structure fits mediumly to the cross-tabulated model. The relationships between core variables are being examined in this study, as they should be independent variables in a sense per se. The study results derive a conclusion of similarities and differences in magnitudes. On the one hand, small sampling eventually makes the model meaningful to study because this is a scientifically informative case. Thus, the study can accept the analysis. Nevertheless, considering High RMSEA fit indices predict problematic fit for many factors with low or high magnitudes. Using and developing the meter on Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) is the responsibility of combined frameworks researchers (Pintrich & De Groot 1990).

### 3.4.3 Convergent and Discriminant Validity

Table 4 shows Pearson R correlation magnitudes between Motivated Strategies for Learning (MSL) variables, outcoming a significant positive correlation between all concepts. The determinant processed by the Bareiss algorithm is over.0001 (0.006); thus, the variables are not collinear, and thus the table acts as a fully discriminated factor distribution (Friel 2021).

Table 4: Construct correlations

	1	2	3	4	5
Self-efficacy	.693	.939**	.325**	.832**	.401**
Intrinsic Value		.637	.287**	.885**	.263**
Test Anxiety			.647	.454**	.727**
Strategy Use				.532	.288**
Method					.418

The exogenous loadings must factorize individually to measure discriminant validity. Factor analysis and machine learning model showed unideal but satisfactory behavior between latent structures, and KMO concludes miserably without pruning and mediocre by pruning one of the endogenous variables: number 43 that was executed with a considerable amount of consideration. The current factorized model was wanted to be kept in further analyses to hold its suitability to distinguish its highest correlations with other constructs that may explain the problems that under .5 average variance extracted (AVE), and dependent variables contrasted correlation indicates.

### 3.5 Reliability Levels

The Cronbach's  $\alpha$ -coefficients for respondees signals are derived from formed sum variables.  $\alpha$ -coefficients range from reasonable to reliable reliability (see Table 5, adapted Taber 2016) and are scaling as within many previous studies (as in both Artino 2005 cited Pintrich 1993 and Pintrich & De Groot 1990 cited Pintrich et al. 1986). Table 5 presents the varying reliability of the data sum variables: moderate-to-fairly-high (.637-.953) reliability

values indicating reliable measurement level. The study tested convergent validity in a reflective model with component reliability.

*Table 5: construct reliability levels.*

	<i>Cronbach's alpha (Standardized)</i>	<i>Composite reliability</i>
<i>Self-efficacy</i>	<i>0.953</i>	<i>.946</i>
<i>Intrinsic Value</i>	<i>0.940</i>	<i>.879</i>
<i>Test Anxiety</i>	<i>0.816</i>	<i>.879</i>
<i>Strategy Use</i>	<i>0.944</i>	<i>.895</i>
<i>Method</i>	<i>0.637</i>	<i>.777</i>

### 3.6 Correlation And Regression

The correlation analysis was approached with Pearson's correlation coefficients. The sum variables must not correlate too strongly with each other due to multi-collinearity (Paolletta 2019). In regression analysis, explanatory variables are selected from the data. The suitability of the usability of the variables requires confirmation, as the results must be linear (Metsämuuronen 2001). According to one definition, the number of observations should be at least 40 per variable for regression analysis to be a reliable method (Paolletta 2019). Due to the sample size (N = 76), slight case-specific generalizations can be made based on the analysis, only describing this study's sample set. Finally, the regression test determines the confidence interval comparison's minimum, maximum, non-standardized B, p, and standardized  $\beta$  (ibid.). The correlation coefficients are like the predictors of the regression analysis (Friel 2021), but since study should also review explanatory rates for the relationships of some variables.

## 4 Empirical Results

### 4.1 Research Question One: Descriptives

Descriptives, on the one hand, were average, indicating considerable variation for positively agreeing with the measured statements for Self-Efficacy (SE), Intrinsic Value (IV), and Strategy Use (SU), as arranged in table 6. On the other hand, averagely, agreements to disagree pop up for test Anxiety (AN) and Method (ME) that both indicate positive skewness for the directional distribution emphasis. The most stimulating sum variables were as well very negatively skewed ones, Self-Efficacy (SE), Intrinsic Value (IV), and Strategy Use (SU).

The extraordinary leptokurtic characteristics for Method (ME) indicate sharply positively peaking distribution, which is interesting. Noting both negative and positive skewnesses towards agreements and disagreements, the first-hand variables are nearly sharply peaking positively (.23-.792). Negatively peaking kurtoses were not found this time, which is interesting because platykurtic behaviors indicate the flatness for the classified sampling.

*Table 6: Sample descriptive variables*

Variable	Min.	Max	M	SD	Skewness	Kurtosis
Self-efficacy	2.000	7.000	4.563	1.043	-0.197	0.792
Intrinsic Value	2.000	7.000	4.968	1.121	-0.698	0.711
Test Anxiety	1.500	7.000	3.911	1.237	0.303	0.479
Strategy Use	2.118	7.000	4.664	1.081	-0.186	0.230
Method	2.000	7.000	3.553	1.001	1.300	3.753

#### 4.2 Research Question Two: Regression Path Analysis

Acceptable statistical significances verified research hypotheses in the tests expressing the magnitudes for Motivated Strategies for Learning (MSL) latent structures: *Motivation Beliefs (MBs): Self-Efficacy (SE), Intrinsic Value (IV), and test Anxiety (AN); and Self-Regulated Learning Strategies (SRLS): Strategy Use (SU) and Method (ME)*. The performed test used a confidence interval comparison. Confidence interval comparison provides a detailed description of the effects. Confidence comparisons of specific  $\beta$ -estimates drawn on the path show the derived impact from respondees' personality characteristics on the preferred response. The test looks at the upper and lower limit of the  $\beta$ -means between the variable distributions. You can find the positive and statistically meaningful results for tests in table 7. The constructed values of the test sets were in the delimitation of the lowest and highest values. Had the values not hit the delineation, the difference between the sets would not have been statistically significant.

Table 7: confidence interval comparison of Motivated Strategies for Learning (MSL) from, Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) angle on to that is represented in each variable row, and columns and cross-tabulated which resolution is shown separated by touching a specific instrument.

95 % confidence interval				
Variable	SSCP		$\beta$	
	Fc1	Fc2	Fc1	Fc2
Self-efficacy	1553.683	1424.574	.81**	.605**
Intrinsic Value	1691.913	1551.316	.783**	.531**
Test Anxiety	1331.889	1221.210	.468**	.531**
Strategy Use	1588.277	1456.292	.760**	.671**
Method	1209.789	1109.257	.338**	.616**

The following chapter describes the technical parameters of the confidence interval comparisons between the models that led to the analysis results. Decisions can rely upon if the  $R^2$  explains a substantial sample average variance for the phenomena that is logically associated together and realizable.

#### 4.3 Research Question Three: Explanatory Rates

The previous correlation and confidence interval comparison showed different magnitudes between the Motivated Strategies for Learning (MSL) characterized attitudes adopted by the respondees. The interaction between the supplemented sum variables with latent variables for hypotheses explanation and summarization helps explain the amount of sampling variance that dependent variable responses perceive explainable proportion by independent variable in a regression model. All confidence interval comparisons were tested in pairs statistically significantly. The purpose of the third RQ was to find out the explanatory rates in the perceptual level considering the model path analysis. The respective loading factors are squared and equal to the Motivated Strategies for Learning (MSL) model AVE.

##### 4.3.1 Latent variables explanatory rates for Motivation Beliefs (MBs)

From Motivation Beliefs (MBs), Latent Structures angle was constructed trichotomously on Self-Efficacy (SE), Intrinsic Value (IV), and test Anxiety (AN), establishing an overall explanatory quantity of striking of 65.6 % ( $R^2 = .656$ ,  $p < .001$ ), striking for SE, slightly less 61.3 % ( $R^2 = .613$ ,  $p < .001$ ), and a quarter for IV of 21.9 % ( $R^2 = .219$ ,  $p < .001$ ) for AN.

#### 4.3.2 Latent variables explanatory rates for Self-Regulated Learning Strategies (SRLS)

*Positioning individuals' perceptual Self-Regulated Learning Strategies (SRLS) was established on explaining slightly under the two-quarter amount of 45.0 % ( $R^2 = .450$ ,  $p < .05$ ) total variance, which respectively viewed in Strategy Use (SU) with a minor representation of quantified impressive substantial amount and respectively, a bit less meaningful explanation of 37.9 % ( $R^2 = .379$ ,  $p < .001$ ) were expected for Method (ME).*

#### 4.3.3 Motivation Beliefs (MBs), and Self-Regulated Learning Strategies (SRLS) Top-Level Motivated Strategies for Learning (MSL) Model Connections

To summarize the findings for the combined tetrachoric Motivation Beliefs (MBs) measures with and against polychoric Self-Regulated Learning Strategies (SRLS) mediating and direct effects, the results are shown in table 8 that connects previous studies' models into one viewable structure. Here the highest level is finally considered and revised, i.e., the combination of channels are used in conjunction with Motivation Beliefs (MBs) to compare this particular model of Motivated Strategies for Learning (MSL) with results with Self-Regulated Learning Strategies (SRLS) personal humanity perceptions. This indicates that viewing two input entries for Motivated Strategies for Learning (MSL) resulted in an explanatory quantity for the requirement of perceptions that converges smoothly to amount of 96 % ( $R^2 = 0.96^{**}$ ,  $p < .05$ ) for Motivation Beliefs (MBs) and amount of 95.1 % ( $R^2 = 0.951^{**}$ ,  $p < .001$ ) for Self-Regulated Learning Strategies (SRLS).

Table 8 confidence interval comparison of Cognitive Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) for viewing context-specific Motivated Strategies for Learning (MSL)

Variable 2	Variable 1	95 % confidence interval			hypothesis
		SSCP	p	$\beta$	
MSL	MBs	1462.431	<.001	0.980**	Accepted
	SRLS	1340.904	<.001	0.975**	Accepted

The connections focusing on setting Motivational Beliefs (MBs) within Teaching-Studying-Learning-Process (TSLP) utilizing Self-Regulated Learning Strategies (SRLS) are both ways considered influential factors for Motivated Strategies for Learning (MSL).

#### 4.4 Summarizing Hypotheses Experimentation

The hypotheses presented in chapter 2.5 *Research Problematization and Hypotheses* was positioned in terms of statistical testings results:

The research hypotheses (RHs) are stated as follows:

*H1: Respondees' latent-domain variations fit the Motivation Beliefs (MBs) model. [ACCEPTED]*

*H1.1: Self-Efficacy (SE) supports the Motivated Strategies for Learning (MSL) model positively. [ACCEPTED]*

*H1.2: Intrinsic Value (IV) supports the Motivated Strategies for Learning (MSL) model positively. [ACCEPTED]*

*H1.3: H1.3: Test Anxiety (AN) positively supports the Motivated Strategies for Learning (MSL) model. [ACCEPTED]*

*H2: Respondees' latent-domain variations fit the Self-Regulated Learning Strategies (SRLS) model. [ACCEPTED]*

*H3.1: Strategy Use (SU) supports the Self-Regulated Learning Strategies (SRLS) in Motivated Strategies for Learning (MSL) model positively. [ACCEPTED]*

*H3.2: Method (ME) supports the Self-Regulated Learning Strategies (SRLS) in Motivated Strategies for Learning (MSL) model positively. [ACCEPTED]*

*H3: Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) Support the Motivated Strategies for Learning (MSL) model ultimately. [ACCEPTED]*

In conclusion, the more the individual perceives Motivational Beliefs (MBs) setting and utilizing Self-Regulated Learning Strategies (SRLS) is having more strongly. Eager Motivated Strategies for Learning (MSL), and as speculatively (Heilala 2022b) being more probably associated in practice as a predictor towards success and growth mindset than lesser motivated for MSL latents would indicate. However, exceptions or considerable emphasis apply to the sample. One latent method utilization was extraordinarily poorly deployed, so High Motivation Beliefs (MBs) association with indicated Methods (ME) can be considered for partial variation as a positive correlation. Still, the level is indeed on the wrong side of the line, so to speak, so that we may discuss this exclusion in the next chapter: how do we manage to find better grounding for the learners' perceived methodologies. We can assume that the fuller endogenous model styles results, the more satisfying the samplings overall model are in both Motivation Beliefs (MBs) resolution, and the lower Self-Regulated Learning Strategies (SRLS) and appears more idealistic learners, having more strength and eager Motivated Strategies for Learning (MSL)

## 5 Discussions and Conclusions

The study of learning is always justified if we as teachers approach the EU's key competencies, of which learning to learn is one of the main competencies. Instead of a mere narrative of narcissism, content, and teaching for routine work (and rote learning), learners need the motivation to excel in the workplace when faced with problems; there must be a rigorous Problem-Posing (PP) attitude and Problem-Solving (PS) mastery motivation as stated in the initial broadcast. To this end, we will now look at the arisen resolution on learning to learn point of view with motivation and learning strategies emphasis to form authentic motivated learning strategies.

Hearing Learners' voices investigation encourages exploring students' domain-specific perceptual operating system clicks, touches, or other brain-related stimulations as wired brain-signals interacting with a computerized survey (reflecting are serious within the academic simulation) are sound as epistemic learning products consequencing into subject-specific matters (see Heilala 2022a) including its advanced context (adaptation from Voica et al. 2020). The following research paper's scientific framework meaningfulness is raised from the cognitive psychology of response-activity theories within social systems (setting of Learning Beliefs, Social Cognition, and immersive Autotelism combined Heilala 2021 with emphasis on autotelism as in Heilala 2022a). The dynamic use of Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) arises enhancing demand for learning disabilities: uncertainty and ambiguous situations relating dialectically in Problem-Solving (PS) and Problem-Posing (PP) emphasize being critical in teaching and learning context-specific matters,

while PP had gained an increasingly more crucial role in Teaching-Studying-Learning-Process (TSLP) (adaptation Voica et al. 2020 cited Singer 2013; 2015 among ibid. cited tens of others). Taking-down ambiguous situations by solving problems in PS-setting in an educative context acts as an enabler for a growth mindset with adaptive coping Self-Regulated Learning Strategies (SRLS) (adaptation of ibid. cited Silverman et al. 1992).

The measurement device enjoys high trust in the psychological assessment of learning psychological management research fields. The studies developed and assessed the reliability and validity of the research instruments to conclude new Motivated Strategies for Learning Barometrics (MSLB)-based assessment of the Learning-to-Learn (L2L) broad spectral context. The resolution concludes strong associations between Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS), forming new Motivated Strategies for Learning (MSL) relationships. Instead of benchmarking social system learning efficiency with log analyses, a follow-up study for professional's self-assessments was more comfortable. The intention was to capture learners' thoughts with a self-report scale reflecting perceptual beliefs in context-specific matters.

Prior Research Story processes a generalized resolution for quantifiable statistical measures for argument battery consisting of *Motivation Beliefs (MBs)*: Self-Efficacy (SE), Intrinsic Value (IV), Test Anxiety (AN), and *Self-Regulated Learning Strategies (SRLS)*: Strategy Use (SU) and Method (ME) statistics. The study contributes to research findings on educational context corporational findings in emerging sectors with a specific focus on discriminating Motivation Beliefs (MBs) from Self-Regulated Learning Strategies (SRLS) and showing the combination meaning of MSL of orientation for growing and fixed mindsets in its emphasis on Motivated Strategies for Learning (MSL) indices based on respondees responses. In this study, the context-specific compatibilities discriminate top-down parallel dimensions as separated different perceptions among participants. Thus, the study shows how each respondee's vulnerability is exposed to knowledge or decision to raise (over average) or fall (selected numeral under average) on the Likert scale.

Teachers have kept identifying how individuals have perceived their motivation to learn in the past, whether it is productized from education or some other extent of development. Connections indicated a clear connection with a substantial variance for some variables. The correlation table indicates a poor fit for some structural variables due to multicollinearity. Few respondees' submitted responses explain other variables in the same category and independent variables. When these constraint connections consider low R<sup>2</sup> explanatory levels but statistically significant between instrument indicators, as a teacher, leader, and researcher, these aspects can be developed to result in a higher average spectral variation score for the impact substance. Thus, the education system would enhance MBs and SRS capabilities on specific-context for customers ordering competencies to cope with working life (as Heilala 2022b cited Aho 2010 concluded), as "professionals are increasingly expected to keep up to date and embedding key competencies for working life "(adapted cut from Hellne-Halvorsen *et al.* 2021).

Validity succeeds in construct and discriminant validity for Motivated Strategies for Learning (MSL) content analyses as former studies analyzed (see Pintrich *et al.* 1991 among other ibid. frameworks; Chinese adaptation Rao & Sachs 1999). Given how extensively Motivation Beliefs (MBs) instruments explain (R=.980\*\*) and how much Self-Regulated Learning Strategies (SRLS) explain (R=.975\*\*) in favor of context-specific MSL metrics, the

distributions of each can be interpreted as binding dependent elements to establish MSL. As a comprehensive decisiveness, many learners can see their MBs and SRLS set enabling success.

On the one hand, a substantial number of evidence less than (.5) confidence level for R2 but statistically significant urge to mean that instruments explanatory rates are weak (associated connections between latent-profile analyses) but meaningful, i.e., significant. When the variable fails at less than (.5 level), it is considered to consider studying how the representative's perceptual capabilities and behavior can be elaborated for insight to offer better educational service and resolutions for MBs and SRLS. Solved method bias factors by conducting pair- and stepwise regression results and pruning the quantified latent variables improving the outcomes. Results can acknowledge possible collinearity issues due to high loadings, but the sample size quickly interprets that sample size interfered with multicollinearity diagnosis. Prior Motivated Strategies for Learning (MSL) study considers analyses, concluding bias, and thinking that observing stepwise regression results and pruning the quantified latent variables could improve the results. Only one endogenous variable was removed in this study to increase reliability. The current study suggests that some estimates should be pruned; therefore, the study has a relatively high RMSEA value indicating a medium fit. Questionnaire developers assessed Motivation Beliefs (MBs) and Self-Regulated Learning Strategies (SRLS) model Motivated Strategies for Learning (MSL) validation with an evidential signal on discriminant validity, so the quality of classification, i.e., the accuracy should be within probability boundaries. Results emphasize that the model only suggests that highly scored people may have a more solid general sense of perceptual MBs and SRLS over the measurement time. The resolution suggests that respondees' have slightly less likely Anxiety (AN) to take tests in their Motivated learning Beliefs (MBs) and, respectively, Methods (ME) in their Self-Regulated Learning Strategies (SRLS) toolbox.

## 5.1 Conclusions

Accordingly, this study aimed to examine and clarify the empirical relations between the motivational and self-regulated learning components. Earlier studies propose that the Motivational Beliefs (MBs) latent components positively relate to the Self-Regulated Learning Strategies (SRLS). In disparity, the research on test anxiety does not suggest such simple relations. (Pintrich & De Groot 1990.)

Although the other MBs latent components in Self-Efficacy (SE) and Intrinsic Value (IV) generally display straightforward, approving, and linear connections with the constituents of SRLS, the results for AN are not as straightforward as for methods. Pintrich (1991) elaborates that Benjamin et al. (1981) found that although increasingly worried learners appeared to be persevering and low-anxious learners, they appeared to be very counterproductive. Weak learners often did not use appropriate cognitive strategies for achievement, which is indicated in prior studies that methods may be lacking. On the other hand, other studies indicate that high-anxious learners' are not persevering or avoid complex tasks (ibid. cited Hill & Wigfield, 1984). (adapted Pintrich & De Groot 1990 with the weight of discriminating resolution of this study.) Accordingly, AN may be related to the three self-regulated learning segments differently, and combination suggests that it is likely to have low-level achievers explained of lack of learning methods. Conclusion: Learning-to-Learn (L2L) must be supported by the techniques and methods of different combinations of the elements benchmarked (surveyed and negotiated) and better aims set for different learning populations.

## 5.2 Summary

The study collectively combined Motivated Strategies for Learning (MSL) characters into a single extensive model in the domain of Higher Education and its lower tertiary level-specific respondents. Motivation Beliefs (MBs) should collectively support Motivated Strategies for Learning (MSL) more than half of the explanatory rates (ultimately). A prior study indicated that Self-Regulated Learning Strategies (SRLS) is slightly more strongly present in the studied case than SRLS, indicating that people perceived their learning methods as relatively low than having strongly positive perceptions toward not having Anxiety perceptions on taking examinations in the context of and indicating a bold statement for seeking more inspirational and motivational foundations for aiming at Motivation Beliefs (MBs) more tightly to result in more intrinsically motivated learners striving for best understanding and solving ambiguous situations on subject-specific matters (Adapted Heilala 2022b). Invariance measurements (as *ibid.* cited Wang et al. 2017) indicate statistical survey qualities support validated constructs for a case study. The Motivated Strategies for Learning (MSL) MSL-latent-model postulates individuals who possess specific attributes for entering and sustaining Self-Regulated Learning Strategies by Motivation Beliefs (MBs) and appear to utilize a great extent of willingness to try different strategies and methods to achieve goal setting (Heilala 2022c claim adaptation).

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