Antecedent Model of Punctual Behavior of Undergraduate Students*

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Abstract

Punctuality has become one of the most important values in modern society. However, students seem to become tardier in learning and often procrastinate. This study aims at investigating antecedent factors of punctual behavior of undergraduate students using SEM approach for creating evident-based model, and for comparing two models. Results from path analysis using 1,311 students indicated that psychological state latent variable yielded the strongest path coefficient, followed by psychological trait latent variable, and situational latent variable which supported interactionism paradigm. The second model with additional path from psychological trait to situational condition was found to be more robust, with predictive power of 78.40%. Evidently, the psychological

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trait construct which consisted of three personal characteristics, i.e., moral (dis) engagement, self-regulated learning and core self-evaluation, showed both direct and indirect paths towards punctual behavior of the students. Strong recommendations for more studies in this area and training modules for students' development programs to enhance successful learning and future career are offered.

Keywords: Psycho-situational Predictors, SEM for Model-comparison

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บทคัดย่อ

สังคมยุคปัจจุบันได้ยกให้ความตรงต่อเวลาเป็นค่านิยมที่สำคัญประการหนึ่ง แต่กลับปรากฏว่านักศึกษาในมหาวิทยาลัยมีนิสัยเชื่องช้าในการศึกษาเล่าเรียนและมักผัดวันประกันพรุ่งมากขึ้น งานวิจัยนี้มีจุดประสงค์ในการศึกษาเกี่ยวกับปัจจัยเชิงสาเหตุของพฤติกรรมตรงต่อเวลาในนักศึกษา โดยใช้วิธีการวิเคราะห์เส้นทางอิทธิพลเพื่อสร้างรูปแบบหรือโมเดลเชิงประจักษ์ และทำการเปรียบเทียบสองโมเดลจากผลการวิจัยที่ศึกษานักศึกษาจำนวน 1,311 คน ทำให้ระบุได้ว่า ในรูปของตัวแปรแฝงนั้น จิตลักษณะตามสถานการณ์มีค่าสัมประสิทธิ์เส้นทางอิทธิพลที่มากที่สุด รองลงมาคือ จิตลักษณะเดิม และสุดท้ายคือปัจจัยด้านสถานการณ์ของนักศึกษา ผลส่วนสำคัญนี้สนับสนุนกระบวนทัศน์เชิงปฏิสัมพันธ์นิยม นอกจากนี้ในโมเดลที่สอง ซึ่งมีการเพิ่มเส้นทางอิทธิพลจากจิตลักษณะเดิมไปยังสถานการณ์ที่ผู้ตอบประสบอยู่นั้น ทำให้โมเดลนี้มีความเข้มแข็งมากขึ้น โดยมีอำนาจในการทำนายพฤติกรรมตรงต่อเวลาได้มากถึงร้อยละ 78.40 ที่เห็นได้ชัดคือ การที่จิตลักษณะเดิมของผู้ตอบ ซึ่งมีสามจิตลักษณะย่อยคือ จริยธรรม (ไม่หลุด) การจัดระเบียบตนในการเรียน และการประเมินแก่นแห่งตน ทั้งสามประการนี้มีเส้นทางอิทธิพลทั้งทางตรงและทางอ้อม

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ไปสู่การทำนายพฤติกรรมตรงต่อเวลาของนักศึกษา งานวิจัยนี้ได้เสนอแนะการวิจัยต่อไปและการใช้ผลการวิจัยนี้ในการกำหนดชุดฝึกอบรมนักศึกษาไทย เพื่อเพิ่มความสำเร็จในการเรียนและที่สำคัญคือเพื่อประโยชน์ต่องานอาชีพในอนาคต

คำสำคัญ: ตัวทำนายด้านจิต-สถานการณ์ SEM เพื่อการเปรียบเทียบ โมเดลกระบวนทัศน์เชิงปฏิสัมพันธ์นิยม

Introduction

The world has become much more advanced in science and technology. This leads to a high demand for punctuality in work and life. However, students in schools and universities have been reported to regress into unpunctuality and high procrastination (Butakor & Boatey, 2018). This can become strong habit and can be carried over into their future work-life (Sonnentag, Tian, Cao, & Grushina, 2021). Academic and vocational failures can threaten individuals or, their organizations as well as modern society.

Despite encouragement to change one's research approach to positive models (Seligman & Csikszentmihalyi, 2000), tardiness and procrastination studies are continuously being emphasized. Quantitative research studies on punctuality and punctual behavior have been scarce (White, Valk & Dialmy, 2011), even at present.

The present correlational study aims to examine multiple groups of antecedents of punctual behavior in university students. It offered empirical understanding beyond previous research in three ways. First, this study employed a well-constructed measure of students' punctual behavior, based on a similar type of respondents. Second, both internal (psychological) and external (situational) antecedent types of variables are used. Third, mediating variables are guided by a well-documented interactionism paradigm, as well as, from research literature review. In addition, path analysis with latent variables were carried out to find a more robust model between two competing models. The magnitude of relationship among groups of predictors toward punctual behavior will be a strong basis for future research and development endeavors.

Literature Review

Punctual behavior of university students

Time is available and usually free to all normal individuals. However, time seems to pass by so quickly, especially when we need it. Appropriate time management can lead to goal attainment and achievement in life (Britton & Tesser, 1991; Sultana, Rashid, Mohiuddin, & Mazumder, 2013). Even though punctual behavior can be defined as having various dimensions, but the common element is “being on-time”, or “time keeping” (James & Fleck, 1986).

Evidently, time dimension is only necessary but insufficient to give complete meaning to punctual behavior. Appropriate content needs to be specified, for example, one study used number of hours per week of working at the worksite for each construction worker (Latham & Frayne, 1989). In another study, punctuality was simply defined as the difference between arrival time and the specified appointment time (Spiegelhalder, Regen, Kyle, Endres, Nissen, Feige, & Riemann, 2012). Thus, punctual behavior should cover other dimensions of behavior. Besides time and place, the type of actor, the kind of recipient (if any), helpful or harmful action, social norm, culture, etc., are important dimensions for a person's action to be classified as punctual, nonpunctual or irrelevant (Brislin & Kim 2003; Levine, West & Reis, 1980)

In reviewing research studies, it seemed that researchers used the word “punctuality” at a lesser extent than three other constructs, i.e., procrastination, lateness, and tardiness. Earlier studies put punctual behavior at the opposite end of the same continuum as procrastination (Blatt & Quinlan, 1967). However, other researchers reported the negative relationships among these two constructs from a meta-analytic study (Van Eerde, 2000; 2003). Evidently, procrastination was conceptualized as trait, while punctuality was its reverse performance.

It is surprising that studies of punctual behavior were rare in comparison to the studies of procrastination (Hen & Goroshit, 2018). Maybe after all this shows that “bad is stronger than good” (Baumeister, Bratslavsky, Finkenauer, & Vohs 2001). However, punctuality and procrastination are not necessary at the opposite ends of a continuum. A person can be procrastinated until the last minutes but can still meet the deadline (being punctual). In such cases active procrastination can be used to raise higher anxiety of working efficiently at the last minute (Chu & Choi, 2005; Zohar & Shimore & Hen, 2019). Therefore, one cannot expect that the characteristic of “low procrastination” can be a synonym of “punctuality”

As for punctuality versus lateness, most researchers agreed that the two constructs are the opposite or antonym of each other. Non-punctuality usually means lateness in most measures, such as in the attitudes toward punctuality (Bhanthumnavin, Bhanthumnavin & Sorod, 2018). In addition, lateness was used with working individuals, while tardiness was used with production (or service) units or students (Foust, Elicker & Levy, 2006; Mebarki,

& Shahzad, 2012). While Blau (2002) offered three criteria for taxonomizing lateness behavior, i.e., pattern, frequency, and duration of the incidents. He also revealed that different antecedents accounted for different types of lateness behavior.

In fact, most punctual behaviors, by meaning and positive outcomes are considered prosocial or desirable. Furthermore, punctual behavior can be an important component of health behavior, work or study behavior, or even moral behavior.

On the contrary, nonpunctual behavior can be classified as antisocial or unethical if the consequences turn out to be harmful to others, or to deprive other people's rights to have a free time. Therefore, punctual behavior can be a common core in the definitions of many prosocial and antisocial behaviors. Thus, important antecedents of those behaviors are also expected to be applicable to punctual behavior.

This study attempts to examine a more comprehensive model of the antecedents of punctual behavior of Thai university students. An original measure of punctuality in the life of students was newly constructed for this purpose. Summated rating method with self-report was chosen as most appropriate for measuring punctual behavior of Thai university students. This method has more advantages than disadvantages. For instant, the sum of all the item-scores in the test from each respondent can be assumed as having interval scale, while each single item is more of an ordinal scale. Thus, parametric statistics such as correlation coefficients and SEM standardized coefficients can be used with more confidence (Wu & Leung, 2017). Furthermore, a six-point unit rating scale was used for each item, has been confirmed as most appropriate (Kulas & Stachowski, 2009; Preston & Colman, 2000; Simms, Zelazny, Williams, & Bernstein, 2019). In addition, most of the variables in this study followed this format of measurement to ensure their measurement quality.

The punctual scale covers “being on- time” in the context of studying behavior, and as rule adhering for class attendance and meeting academic deadlines. Furthermore, the scale also covered a context with peers, then punctuality is related to promise keeping, being a responsible person, and avoidance of bad feelings and discomfort among friends. Therefore, the antecedent model selected for this study should cover various groups of possible causes of these behaviors as elaborated below.

Interactionism paradigm and types of antecedents of punctual behavior

Nearly all academic fields examine the causes of human behavior, have emphasized only on situational antecedents, such as the push and pull factors for entering or leaving a place (such as a university). This type of theory usually overlooks the inner or psychological causes of actions. On the contrary, the personality theorists emphasized only the "actor's" psychological characteristics. For example, Lewin's theory (1956) states that human behavior is a function of the actor's ability to do (can) and the actor's motivation to do it (want). Variation of the amount of behavior off the same person in different situations was considered as measurement error.

Joining of these two approaches resulted from the suggestion of Cronbach. However, in social psychology, Fiedler's (1967) research and theory on leadership effectiveness has been one of the earlier successful attempts to predict group performance from leader's psychological characteristics together with group situations (Endler & Magnusson, 1976).

Interactionism is now considered as a paradigm which means a type of theories and predictions which consists of many important theories and supportive research studies from a wide variety of academic disciplines. Interactionism paradigm has four types of determinants of behavior namely, 1) The actor's psychological trait(s) or inner causes. 2) situational characteristics (or present and past locations of the action), and 3) interactional influence of personal and situational causes when joining together additively or multiplicatively. This interactional influence can be conceptualized as mechanical interaction (from statistics analysis) as well as organismic interaction (as measured from psychological state of an actor) which is also specific to the situation or the context of that actor's behavior (Endler & Magnusson, 1976).

In this study, only organismic interaction in the form of psychological states were examined. The reason is to keep the hypothetical model simple, and to avoid unnecessary internal redundancy of research results. However, the mechanical interaction effect on punctual behavior can still be computed if needed.

The advantages in using the interactionism paradigm beyond other models are five folds. First, this paradigm is in the form of a conceptual model (see Figure 1) with three groups of predictors of a group of behaviors. This is consonant with the structural model for performing path analysis. Second, the interactionism model can offer predictions of both direct and indirect

paths from the three groups of antecedents to the targeted behavior. Third, mediating or intervening roles of one or more groups of variables can be clearly examined. Fourth, interactionism model is opened to the research in each study to select the appropriate empirical variables to be grouped as personal or psychological traits, situations, and psychological states. Finally, new development from various fields of psychology and other behavioral science can be incorporated and tested.

Specifications of measured variables as composites of latent variable

Based on the interactionism paradigm, a hypothetical model using three groups of predictors (as latent constructs) and punctual behavior of students can be specified as follows. The three groups of latent predictors mentioned above separately direct the paths towards the target behavior. In addition, the psychological trait latent variable and the situational latent variable also have indirect paths towards the target behavior via the psychological state latent variable. This is only a structural model for hypothesis one. However, hypothesis one has to include several observable variables to form measurement model for each of the three predictive latent constructs.

Psychological traits and punctual behavior

Psychological traits are mental qualities of a person. They can be personality, motivation, ability, belief, reasoning, etc. These psychological traits of certain magnitude are specific to each person. They are rather stable across different situations and time (Bergman, 2001; Tett & Burnett, 2003).

Predictors of punctual behavior in the category of psychological trait proposed here are self-regulated learning, moral (dis)engagement and core self-evaluation. Research evidence on the relationship between each trait and punctual behavior are reviewed and summarized. Finally, measurement model consisting of the three composite psychological traits was proposed.

Self-regulated learning (SR) aimed to capture a predisposition of students in planning and concerning students' duty. They are initiating, effortful managing, striving for each subgoal, such as attending class on time and working on course assignments continuously and preparing for exams as different steps or subgoals, until reaching final academic requirements.

There are hundreds of research studies on procrastination which lead to several reports on research review using meta-analysis. Steel (2007) found 691 correlations, among them, there was a high average negative correlation between self-control and procrastination. In other words, the ones who had low self-control usually were high procrastinators. In another study of 167 undergraduate students, the ones who were late in various class assignments were low in self-discipline (Steel & Klingsieck, 2016).

Ask for being punctual at work, successful training of self-management (SR) was evident in government employees and salespersons in the US. This six month long training in both projects also helped increasing self-efficacy after training (Frayne & Geringer, 2000; Latham & Frayne, 1989). In Belgium and Indonesia, freshman with low self-control showed high procrastination trait and had more problems in being punctual in their learning (Dewitte & Schouwenberg, 2002; Wijaya & Tori, 2018).

Self-regulation and self-management in relation to time concern and time management have been found to have a rather strong association with procrastination and thus punctuality. Therefore, in the present study, self-regulation was expected to have strong relationship as antecedent of punctual behavior in Thai students.

The widespread occurrence Lateness and non-punctuality in studying as well as in social life is considered as undesirable in most cases even in Thai culture. The non-punctual, rule disadherence, promise unkeeping, etc., may create disturbance in the actor. The ones who live happily with this bad habit and still let it grows, may have mastered some defense or protective techniques. Moral disengagement from Bandura's social cognitive theory is the second proposed antecedent trait. Bandura identified eight cognitive techniques that a person can use to protect self-worth and or to avoid self-condemnation. These moral disengagement thinking is what we called “justification” or “rationalization” (Bandura, 2002; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996).

Among the eight techniques, four of them are, first, displacement of responsibility which means that the cause or influence on such action is not one's own, but one has to comply or obey others. In the case of university students, they can blame senior peers or advisors for the low quality, less quality and or non-punctuality of academic work.

Second tactic that one can use is “advantageous comparison”. This technique is intended to reduce self-condemnation for an unethical behavior by comparing it with graver negative behavior of others. For example, when breaking some rules in college, one decides that it is much less severe than committing an unlawful act. Third technique which is classified as moral disengagement is “dehumanization” or lowering the values of the victim to show that the action is justified for this type of people. For example, when other students got mishaps, one shows no sympathy because one believes that the victim was his or her own misfortune. Another more eclectic of moral disengagement is call “euphemistic labeling”. With intention to persuade a receiver, one uses a more positive wording for negative events such as exchanging of answers for a take-home exam among peers is a demonstration of group solidarity (Bandura, 2002).

Therefore, it can be expected that students with high moral disengagement are the ones with low ethical behavior. Bandura suggested that moral disengagement as a unidimensional concept can have both direction and indirect paths (or influence) on moral behavior. High moral disengagement was found in 675 high school adolescents with aggressive and delinquent behaviors (34% and 31% of variance explained, respectively). Guilt feeling connected and mediated moral disengagement with this behavior (Bandura, 2002). Hardy, Bean, & Olsen (2015) studied 384 high school students with the mean age of 16.28 years, high moral disengagement was found in students with records of rule breaking.

In adult workers, meta-analytic study using 166 studies reported that moral disengagement was moderately associated with workplace misconduct, but less so with organizational citizenship behavior. Mediators of the relationship between moral disengagement and workplace misconduct were moral awareness, guilt feeling and self-regulation (Ogunfowora, Nguyen, Steel, & Hwang, 2021).

More recently, 266 postgraduate students responded in a questionnaire booklet. Academic procrastination was found to be highest in students with high moral disengagement when they were under the supervision of high moral disengagement supervisors. However, students’ moral disengagement showed low positive relationship with their academic procrastination. But their supervisors' moral disengagement was also associated with their students' level of procrastination (Wu & He, 2022).

Evidently, studies on the relationships between punctual behavior of students and their moral disengagement have not been directly identified. However, it can be expected from the above studies that punctuality and moral disengagement are negatively related in college students. In this study, the moral (dis)engagement (MD) was used with high scorers were expected to be more punctual. In addition, punctual behavior of university students can vary according to many other psychological traits. Four other traits combined to form a multi-dimensional higher-level trait was used as follow.

Different people have an equal belief in themselves as a valuable person or having capacity to succeed when putting in more effort to obtain an important goal and having balanced emotion when it is appropriate to do so. These are the four components of "Core self-evaluation" (CSE), i.e., self-esteem, self-efficacy, internal locus of control and stable emotions (Judge & Bono, 2001). This multidimensional trait is a good predictor of a wide variety of other psychological states, such as future concern and attitudes as well as job performance and work success, especially in American students (Judge, 2009). In Thailand, CSE was one of the important psychological characteristics in the elderlies who gave more social support to peers and younger persons (Wichienthano, Bhanthumnavin & Bhanthumnavin, 2021). Social support i.e., giving kind consultation, caring for others) is a type of pro-social or desirable behavior. It is determined by being sensitive to and responding to other people's needs and feelings. Being a punctual person shares this characteristic of empathy. Time keeping and good time management of a punctual individual can be considered pro-social behavior in some circumstance, such as appointment time keeping for letting other the rights to free time. However, CSE has not often been studied as antecedent of punctuality nor even procrastination (Yan & Zhang, 2022). Only one status report that the higher the CSE scores in female students the less they were academically procrastinated (Rajapakshe, 2018). Thus, it is expected that CSE is one of the important antecedents of punctual behavior in Thai students.

CSE was used together with moral disengagement (MD) and self-regulated learning (SRL) to form a latent variable for used in the SEM path analysis. The reasons are three folds. First, each of these traits was usually found to be an isolated predictor of behavior. But this study selected them to be incorporated as one latent variable. Second, their important roles in the latent predictor can be compared using value of factor loading. Third, measurement error of each observed variable is eliminated such that the path analytic result is more reliable than performing a multiple regression analysis. These three reasons were also applicable in forming the two other latent variables as follow.

Situational variables and punctual behavior.

What is a situation? A situation is a changing environment of an individual. This environment can have at least three dimensions, i.e., "cues" (light, color, sound, etc.), "class" (academic situation, social gathering situation, etc.), and "characteristics", which can be given meaning by a person such as, a public place with rules to follow, appointment keeping or moral event, etc. (Rauthmann & Sherman, 2020). Situation that a student experience can happen in the past or occur in the present. This study focuses on three social situations of undergraduate students. They are family climate (FA), significant university teacher's moral encouragement (TM), and friends' academic norm (FR). These three types of social situations with different cues, classes and characteristics were found to have strong social influence on individuals especially on adolescents and students. In a recent meta-analysis report using 30 research studies, parents and closed friends' habits were found to stimulate initial smoking behavior in youth (East, McNeill, Thrasher, & Hitchman, 2021).

In a famous report on 167 sixth grade students, multiple regression analysis revealed that received teacher support was positively related to students' school interests and responsibility goal pursuit. While family cohesion was positively associated with students' mastery goal orientation. In addition, perceived peer support was related to prosocial goal pursuit of adolescents (Wentzel, 1998).

Most Thai parents have high value for higher education. They are willing to sacrifice themselves to support their children. Thus, they demonstrate high expectations for academic success and better living for them. Family atmosphere is defined as continuous exchange of social material and emotional support among family members. The family members can interact with reasoning. More importantly, parents have to be good models in prosocial behaviors, community rule adherence. Family atmosphere of multidimensionality can be demonstrated through family coherent, parenting styles as well as parental expectation, etc.

Parental influence is one of the most effective techniques of cultural transmission of belief and practice from generation to generation. One of the more obvious examples is the hand-on of family career such as rice farming or small grocery enterprises. Evidently children can identify with their parents and/or internalize the values and the behavior of

senior family members. Love-oriented and reasoning-oriented child rearing practices have been active research topics in Thailand for more than 45 years (Bhanthumnavin & Prachonpachanook, 1977; Bualar & Bhanthumnavin, 2021).

In the west, parental child rearing with 2 dimensions of responsiveness and demandingness (Baumrid, 1991; Maccoby & Martin, 1983) has become more popular in research on academic procrastination in many countries. These two dimensions happened to be closely related to love- and reasoning- oriented child rearing practices in Thailand. And also, the authoritative parenting (high responsiveness with high demandingness) in college students with low academic procrastination (Anwar & Qonita, 2019; Wang, 2022). Furthermore, high academic self-regulation could explain the relationship between authoritative parenting and low academic procrastination (Amani & Arbai, 2020)

Thus, it is expected in the present study, parental normative influence as reflected in family atmosphere, is associated with punctual behavior in undergraduate students.

Similar models can be transferred from parenting styles to teaching styles. Effective teachers have to also be both friendly and firm. Thus, teaching can be seen as persuasion or the ways for changing attitudes and behavior of students (Friedrich, 1995). In other words, two processes of attitude change in students are first to identify with their instructors who are friendly and attractive to the students. Second, educators have to be firm in their teaching, knowledge seeking and knowledge using. Students are more easily internalized with credible instructors. Power to reward or punish students to increase their compliance should be used only subtly. The characteristics of persuader, together with the three types of attitudes change in the receivers were conceptualized by Kelman (1958) has gained great acceptance among academicians. Thus, internalization of (accept as better belief or practices) the norms (ways of being concerned with other people and society and upholding their academic roles, such as punctuality and justice) emphasized by the instructors and the university can be a natural process (Guimond, 1999).

Mathematic instructors' role reported by 248 students in contributing to their classroom climate consisted of three components, i.e., instructor course organization, instructor expectation and students' attitude towards their mathematics instructor. The direct path from these three

components could account for only 10.70% of the students' academy procrastination. While indirect path via student's self-efficacy accounted for 21% of the procrastination (Corkin, Yu, Wolters, & Wicsner, 2014). Thus, it is expected that instructors' moral encouragement (TM) is associated with students' punctual behavior.

Punctual behavior can be easily developed for young students by their parents and instructors joining forces. However, this desirable events still seem to be resistance to expansion in university students. The third and more powerful source of social influence is their friends who are much more in need by the students in this situation. Friends are more available than family members and instructors while they are studying. Unfortunately, friends usually are more distractors than supporters of punctuality in learning. Nevertheless, academic enthusiasts are still available among friends.

Studying and having fun can be enacted intermittently. Friends can remind friends of responsibility in learning. Friends' academic norm (FR) is defined in this study as having three dimensions, i.e., friends as good model in study, friend's suggestion to engage in studying, and having friends with less avoidance of academic responsibility. In a study of 100 ethnic minority students, 39% of variance of college adjustment, and 35% of variance of academic success were both accounted for by less peer dependence, high personal motivation to learn but low school GPA. (Dennis, Phinney, & Chuatec, 2005).

A study of 199 Chinese University students using SEM with 3 latent constructs revealed that the more these students resisted negative peer influence, the less they procrastinated in their study. Furthermore, the high resistance to peer influence was found in the students with high self-esteem (Chen, Shi, & Wang, 2016). It can be interpreted that academic procrastination in these students may be due to using more time socializing with friends to get more acceptance. These results were consonant with the view that social appointment with friends was as important as appointment with the tutors. Thus, the students showed high punctuality to attend on both occasions more than in lecture at experimental event (James & Fleck, 1986). Therefore, friend's social influence seems to be highly meaningful to college students. No matter whether the influence is for or against studying, the students with great need for friendship would comply. Thus, it is expected that having friends with high academic norm (and social norm) is associated with academic prosocial punctuality in students.

Three groups of significant others surrounding a student are family members, instructors, as well as friends in the same institutions. These significant others have been identified as important in two major aspects, i.e., giving social support to the target students and having normative influence on them as well. This subjective norm is an important predictor of behavior in the theory of reasoned action and theory of planned behavior (Ajzen, 1991; Fishbein & Yzer, 2003; White, Smith, Terry, Greenslade, & McKimmie, 2009).

Thus, incorporating the three situational variables with common cores into one latent variable can render the measurement model as more reliable. In addition, it is hypothesized that there is a strong positive association between this situational latent variable and punctual behavior of the Thai students.

Psychological states and punctual behavior

Both psychological traits and situational characteristics are the two major groups of antecedents of human behavior as specified in the Interactionism paradigm. The third groups of antecedents in this paradigm are the interaction effects between the psychological trait and situational influence.

When this interaction effect occurs within the acting individual, it is called organismic interaction (Endler & Magnusson, 1976). This interactional antecedent is expected to be closely associated with the target behavior. Since this construct is also a psychological characteristic, but it is also under the influence of the specific situation, experienced by the actor. The antecedent of behavior in the interactionism paradigm, called “psychological state”.

Psychological states are sensitive internal conditions of an individual such as, thinking, reasoning, belief, motivation, personality, attitude, etc., which focus on certain context. The specification of time, place, action, actor and receiver is necessary (Ajzen, 2005). Psychological state is referred to, or measured in more specific context mentioned above, such as rational belief about reading a textbook before exam, or future concern for being nice to other people.

In the present study, three psychological states were employed as antecedents of punctual behavior of undergraduate students in the context of academic time keeping and friendship events. Within these limited contexts, the three psychological states were rational envision (RE), future orientation toward punctual action (FO), and attitude towards punctual behavior (AT).

To identify the more powerful psychological antecedent of punctual Behavior, one has to search beyond the concept of non-procrastination. In other words, non-procrastination personality is necessary but insufficient to drive punctual Behavior. The reason is that there are many more obstacles or barriers along the way to the finish line. Other researchers have been aware of this phenomenon. They called upon the actors' ability to resist temptation or to avoid distraction (Latham & Frayne, 1989).

The present author has a strong place to propose that goal setting and planning for future goal pursuit with dedication, absorption, and vigor from the theory of work engagement (Luthan & Youseff, 2017), as well as initiation with rational and insightful mind (Shi, 2013) as two components of proactive personality are also necessary to be present in normally punctual person.

To behave, the first thing is to make decision or set a goal relevant to punctuality in the target situation. In a study of 185 undergraduate students, the one who believe in success by personal effort (a component of CSE), usually made less decision to delay their action and thus avoided choosing to procrastinate (Sagone & Indiana, 2021). In making decision, adults can use many styles of thinking, such as intuitive style or rational style. Intuitive style is by relating the events to reveal a special pattern for guiding their choice. As for rational style, a person searches information for cause-and-effect relationships and choose the act which can bring them the most reward and least punishment (Scott & Brunce, 1995).

Decision making styles and especially rational belief about studying was in at least two study to show moderate associations with academic procrastination. In one of these studies rational belief about studying was also found in the SEM to be a mediator between procrastination and achievement (Balkis, 2013; Sagone & Indiana, 2021) in students.

In the present study, rational envision was analytically defined as searching for cause-effect relationships of study or social problems. Another domain was rational or irrational contexts for future decision.

Thus, based on the review above and similar definition of rational envision with rational thinking style, it is expected that rational envision (RE) is associated with punctual behavior. In addition, rational envision is one of the factors forming psychological state latent variable.

Planning and goal setting for the next coming days is usually a habit of students with high academic achievement (Britton & Tesser, 1991; Lay & Schornwenburg, 1993). Future orientation (FO) in the context of punctuality was defined as having three important components. First was having punctuality as a preferred goal in studying and social living. Second was planning to increase punctuality when necessary. The third component of FO was punctuality concerns to be on time with friends in teamwork and social functions.

Goal-setting theory offered by Locke and Latham since 1990 has been confirmed by hundreds of studies. This theory indicates that settings future goal can definitely lead to active performance-engagement and accelerates success. Goal setting with strong goal commitment is found to motivate the actor to pay close attention, put more effort, and use appropriate strategy to attain the goal (Latham & Locke, 1991). Based on the reviewed studies and theory, it is expected that the Thai students with high future orientation toward punctuality are the ones with more punctual behavior.

Attitude of a person has been defined in social psychology as having three important components: (1) beliefs about good and bad qualities of the target of attitude. (2) feeling like or dislike of the target of attitude and (3) readiness to behave for positively or negatively toward the target of attitudes (Kretch, Crutchfield, & Ballachey, 1962). If a researcher wants to use attitude to predict the person's behavior, it is recommended that the target of attitude to be measured should be specific behavior such as punctual behavior in this present study.

Ajzen (2005), based on their review of attitude-behavior relations studies concluded that a measure of attitude should be compatible with the measure of predicted behavior to ensure the highest strength of association. The attitude – behavior compatibility should be in four important aspects. They are action, target, context, and time.

The measure of attitude towards punctual behavior, consisted of (1) belief in the social advantages of being punctual with friends, (2) favorable feeling towards having punctual habits, and (3) showing intention or readiness to be punctual in keeping promise and attending meetings.

It is expected that the attitude toward punctual behavior is positively related to punctual behavior of university students. Furthermore, rational envision, future orientation concerning punctuality, and attitude toward punctual behavior are the three components in the measurement model called “psychological state latent variable”.

Psychological states as mediators

Mediator is used to explain the connection between an antecedent and targeted behavior. Recently attitudes toward some behaviors (AT) were found in several Thai studies to be a strong mediator between moral disengagement (MD) and COVID-19 preventive behaviors of students (e.g., Punpromthada, Bhanthumnavin, Bhanthumnavin, Meekun, Sitsira-at, & Pimthong, 2022) and research working behavior of university lecturers (Bhanthumnavin, 2015).

Beside attitudes (AT) as potential mediator between antecedents and a targeted behavior, future orientation (FO) toward specific issues, such as punctuality is another possible mediator. Future orientation has multiple components such as goal setting, goal pursuit and especially time management. Each of these three components of future orientation were found to mediate between self-regulated learning (SR), and economic engagement behavior in high school students (Froiland, Worrell, Olenchak, & Kowalski, 2022), and degree commitment in university students (Collie, Martin, Papworth, & Ginn, 2016; Sharma & Tomer, 2018).

Rational envision (RE) was reflected in thinking about cause-effect relationship for making decision to attain future goal. As for rational belief about studying, Balkis (2013) found that it mediated between procrastination trait and academic achievement of Turkish undergraduate students.

Mediator can also occur when persons with some psychological traits experience a specific situation. Psychological mediator can occur in the form of compliance to government recommendations to stay and work from home during the pandemic. The magnitude of the psychological compliance was found to relate to the sheltering-in-place behavior of the people. As for planning to be punctual which leads to behavior in class attendance, some students were found to be affected by the teachers and peers' punctuality and interacted with their own sensitivity to such practices. This phenomenon led to change to be more (or less) punctual in some students later (Basu & Weibull, 2002).

Thus, it can be expected that psychological state latent variable (RE, FO, and AT factors) is an important mediator between psychological traits latent variable together with situational latent variable and punctual behavior of the Thai students.

Based on interactionism paradigm and the research reviewed above, an hypothesis is being proposed.

Hypothesis 1: Three latent variables which are psychological trait, situational influence, and psychological state, have three direct paths toward punctual behavior. In addition, there are two indirect paths, one from psychological trait latent variable to punctual behavior via psychological state latent variable. Another indirect path is from situational latent variable to punctual behavior via the same mediator (psychological state latent variable).

Perceived situational latent variable and model comparison

Situational factors can be real experience measured objectively such as being a university student or not being one. But situational variables in psycho-behavioral research, more often are measured subjectively by self-report from the experiencing persons.

However, in the interactionist paradigm, the psychological traits latent variable and the Nevertheless, most psycho-behavioral research studies situational variables are measured by self-report rating scales. The respondents are assumed to be in situations, such as, family atmosphere or teachers' class moral encouragement or academic modeling from friends as in the present study. But these students still could perceive, evaluate, interpret, and report the same situation differently. Therefore, the outcomes of such situational measurement are affected by the respondents' psychological traits, as well as the actual quality of the situations.

Consequently, model 2 is proposed in this study by adding one more path from psychological trait latent variable to situational latent variable (Figure 1). Then, after model 1 (without this new path added), and model 2 (with this new path) were compared by applying the technique of structural equation modeling for model comparison (Bentler & Satorra, 2010; Vrieze, 2012).

Hypothesis 2 states that In comparing model 2 with model 1 (as nested model), model 2 has one more path efficient from the psychological trait latent variable to situational latent variable. Then, model 2 is better fitted to the data (more robust) than model 1.

Statistical analysis for testing hypothesis 2 is comparing the model fit indices values of the two models in at least three ways, i.e., goodness of fit indexes, increment percentage of total variance accounted for punctual behavior, and the AIC value differences, (Vrieze, 2012).

Methods

Samples

Regular classroom in four universities in Thailand were used to collect questionnaire booklets from 1,311 undergraduate students. There were 405 males (30.90%) and 906 females (69.10%) with the average age of 21.33 years, the average GPA of 2.90 (SD = 0.53). Most of them were the first generation of the family studying in the university level (n = 714, 54.50%).

Measures

There were 10 variables in this study divided into five groups. Each variable was assessed in the form of summated rating with 6-point scales ranging from “absolutely true” to “absolutely not true”. Each scale accompanied a positively or a negatively worded item. Two statistical approaches, namely, 1) item discrimination (t-ratio) should be at least 2.00, and 2) item -total correlation (r) should be at least 0.20 were employed to test item quality. Construct validity computed by confirmatory factor analysis, and reliability in terms of alpha coefficient, omega reliability and greater lower bound (GLB) were computed for measurement quality. Most of the variables were constructed in the research project (Bhanthumnavin, 2018) under the research program funded by 2018 government budget grant. The item and measurement qualities of each measurement are shown in Table 1.

Punctual behavior (PB) defined as on-time or proper-time behaviors relating to three aspects, which were 1) class and university activities (e.g., submit assignment, arriving at classroom), 2) appointment with peers (e.g., come early, keep appointment schedule), and 3) misbehaviors (e.g., friends have to call for, depending on others to stir up)

Psychological state group of variables consisted of three variables, i.e., 1) rational envision (RE) referred to careful thoughts of causal-effect relations (e.g., finding the causes of various personal problems such as over-spending, maintaining student-identity, and careful risk taking). 2) future orientation toward punctuality (FO) consisted of three dimensions, namely, planning to facilitate punctual actions and to alleviate non-punctuality, having good feelings when attaining punctuality, and being present-oriented without guilt feeling, and 3) attitude towards punctual behavior (AT) involved beliefs, emotions, and intention (Eagly & Chaiken, 2007; Kretch, Crutchfield & Ballachey, 1962) toward punctual behavior.

Psychological trait group of variables consisted of two psychological characteristics and one previous behavior, i.e., 1) core self-evaluation (CSE), based on Judge, Erez, Bono, & Thoresen, 2002) consisted of four important psychological dimensions which are self-esteem, general self-efficacy, locus of control and emotional stability. 2) moral (dis) engagement (MD), based on Bandura (2002), was defined as justification of an individual to unethical behavior in order to alleviate the negative feelings or consequences. A reversed version of MD was used by giving high total score to the one with less moral disengagement, and 3) self-regulated learning (SR) referred to an individual ability to appropriately manage and react to his or her emotions and behaviors.

Situational factor group of variables consisted of three variables i.e., 1) lecturer moral enhancement (TM) referred to the perceptions of students about their lecturer's behaviors of being protective, supportive, good role model, and fair. 2) family positive atmosphere (FA) was defined as perceived social support, rational and rights, with good role model from family. and 3) peer academic influence (FR) was defined as academic support and being academically good role model from peers.

Table 1: Item quality and measurement quality of each variable

Variables	items	∝ (SPSS)	Reliability (∝,ω, GLB) (JASP)	Confirmatory Factory Analysis (CFA)						
				χ^2	df	p-valu (p>0.05)	RMSEA (≤0.06)	CFI (≥0.95)	TLI (≥0.95)	SRMR (≤0.08)
1. PB*	15	0.81	0.87, 0.88, 0.92	60.568	47	0.0884	0.031	0.972	0.953	0.048
2. RE*	12	0.76	0.70, 0.71, 0.78	57.950	45	0.0932	0.031	0.974	0.962	0.038
3. FO*	12	0.81	0.78, 0.78, 0.85	55.167	43	0.1010	0.031	0.988	0.982	0.034
4. AT*	15	0.88	0.87, 0.87, 0.91	90.382	74	0.0947	0.027	0.990	0.987	0.033
5. SR	20	0.84	0.84, 0.84, 0.90	139.212	116	0.0700	0.026	0.986	0.977	0.048
6. MD	16	0.87	0.83,0.83, 0.88	105.561	86	0.0747	0.028	0.982	0.975	0.038
7. CSE	12	0.76	0.77, 0.78, 0.85	33.161	27	0.1918	0.028	0.994	0.985	0.032
8. TM*	16	0.84	0.84, 0.84, 0.89	102.478	86	0.1086	0.025	0.988	0.983	0.042
9. FA*	15	0.86	0.84, 0.84, 0.88	90.237	70	0.0517	0.031	0.985	0.978	0.038
10. FR*	14	0.75	0.70, 0.70 0.82	62.181	48	0.0820	0.031	0.983	0.968	0.048

Note: * Constructed in this study.

Data Collection

The researcher and team received permission from the four universities, time and place were arranged for data gathering. Before administrating, objectives of study and all rights of participant were informed. The informed consent was obtained from the students who were willing to participate. They filled out the paper-based questionnaires which took about 45 minutes. The small token for each student was delivered as an appreciation.

Data Analysis

Path analysis approach which investigates the direct and indirect relationships among the antecedent latent variables and the dependent latent variable was computed from MPlus. Five indexes were used as criterion for model fit. First, Chi-square should be approach 0 and not

significant. Otherwise, the mean-square fit, that is chi-square divided by degree of freedom, should be less than 2.00. Second, the comparative fit index (CFI) should be more than 0.95 (Hu & Bentler, 1999). Third, standardized root mean squared residual (SRMR) indicates the approximate fit which should be ≤ 0.08 (Asparouhov Hamaker, & Muthen, 2018). Fourth, Tucker-Lewis Index (TLI) measures a misfit per degree of freedom (Tucker & Lewis, 1973) which should be ≥ 0.95 (West, Taylor,& Wu, 2012). Fifth, the root mean square error of approximation (RMSEA) is an index indicating a parsimony-adjusted which should be ≤ 0.06 (Browne & Cudeck, 1993).

Results

Intercorrelation between variables

A range of correlation coefficients between the antecedent variables and the pb was 0.148 (p<.01) to 0.624 (p<.01). As for the correlation coefficients among the psychological and situational antecedent variables was between 0.242 (p<.01) to 0.634 (p<.01). These results indicated less multicollinearity problem (Hair, Black, Babin, & Anderson, 2010).

Table 2: Intercorrelation matrix and descriptive statistics of the variables

Variables		Mean	SD	1	2	3	4	5	6	7	8	9
1	pb	67.35	11.09	1								
2	re	55.02	6.71	.365**	1							
3	fo	55.82	6.98	.624**	.542**	1						
4	at	73.80	10.15	.524**	.505**	.634**	1					
5	tm	70.29	9.82	.148**	.343**	.276**	.307**	1				
6	fa	68.33	10.22	.214**	.304**	.242**	.329**	.292**	1			
7	fr	57.06	7.48	.261**	.365**	.326**	.397**	.355**	.326**	1		
8	sr	83.64	11.48	.405**	.547**	.535**	.480**	.393**	.363**	.403**	1	
9	md	64.32	10.21	.286**	.391**	.361**	.528**	.386**	.353**	.450**	.467**	1
10	cse	49.00	6.98	.243**	.330**	.268**	.268**	.278**	.372**	.294**	.471**	.355**

Note. * p<.05; ** p<.01. N = 1311. pb = punctual behavior. re = rational envision. fo = future orientation toward punctuality. at = attitude towards punctual behavior. tm = lecturer moral enhancement. fa = family positive atmosphere. fr = peer academic influence. sr = self-regulated learning. md = moral (dis) engagement. cse = core self-evaluation.

Path model of the antecedents of punctual behavior

The hypothetical model (H1) was tested and revealed acceptable model fit (Table 3 and Table 4). The significant chi-square value with large sample size is commonly expected. The chi-square divided by df value was less than 5 is a common benchmark (Schumacker & Lomax, 2010).

The alternative model was tested by adding path direction between psychological trait latent variable and situation factor latent variable. It was found that the results yielded better model fit (Table 3 and Table 4).

Table 3: Model fit indexes and results in model 1 and model 2 (N= 1311)

	Fit indexes	Model 1 (H1)	Model 2 (H2)
1	Chi-square, df, p-value	103.267, 26, p<.000	35.399, 23, p<.0475
2	chi-square divided by df	3.971	1.539
3	RMSEA	0.048	0.020
4	CFI	0.983	0.997
5	TLI	0.971	0.995
6	SRMR	0.028	0.019

Table 4: Estimated parameter values and statistic values for measurement and structural model of punctual behavior (N = 1311)

Latent variables	Model 1				Model 2			
	b	β	SE	t-value	b	β	SE	t-value
A. Measurement model								
1. Punctual behavior 1.1 pb	1.00	0.547	0.021	25.47****	1.00	0.563	0.020	27.98****
2. Psychological state (state)								
2.1 re	1.00	0.800	0.018	44.59****	1.00	0.783	0.018	42.94****
2.2 fo	0.902	0.702	0.019	37.15****	0.941	0.711	0.019	37.60****
2.3 at	1.647	0.883	0.020	44.98****	1.694	0.877	0.020	44.43****

Table 4: Estimated parameter values and statistic values for measurement and structural model of punctual behavior (N = 1311) (Continue)

Latent variables	Model 1				Model 2			
	b	β	SE	t-value	b	β	SE	t-value
3. Psychological trait (trait)								
3.1 sr	1.00	0.721	0.018	40.02****	1.000	0.678	0.017	40.70****
3.2 md	0.839	0.676	0.020	34.63****	0.914	0.693	0.020	34.98****
3.3 cse	0.489	0.577	0.023	25.36****	0.461	0.513	0.025	20.58****
4. Situational factor (situation)								
4.1 tm	1.00	0.528	0.022	23.80****	1.000	0.539	0.019	28.91****
4.2 fa	1.08	0.544	0.024	23.04****	1.020	0.523	0.024	21.42****
4.3 fr	0.883	0.607	0.023	26.75****	0.890	0.623	0.022	27.75****
B. Structural model								
trait → stat	0.300	0.454	0.015	29.76****	0.320	0.470	0.013	35.73****
trait → situation	-				0.670	0.992	0.025	39.529****
trait → punctual behavior	0.160	0.218	0.011	19.47****	0.300	0.371	0.017	21.32****
situation → state	0.320	0.303	0.013	23.43****	0.270	0.268	0.009	29.17****
situation → punctual behavior	0.140	0.119	0.008	15.42****	0.200	0.167	0.009	18.95****
state → punctual behavior	0.665	0.597	0.026	22.69****	0.489	0.411	0.037	11.25****
C. R^2 for latent variables								
1. situation	-				0.984			
2. state	0.565				0.543			
3. punctual behavior	0.768				0.784			

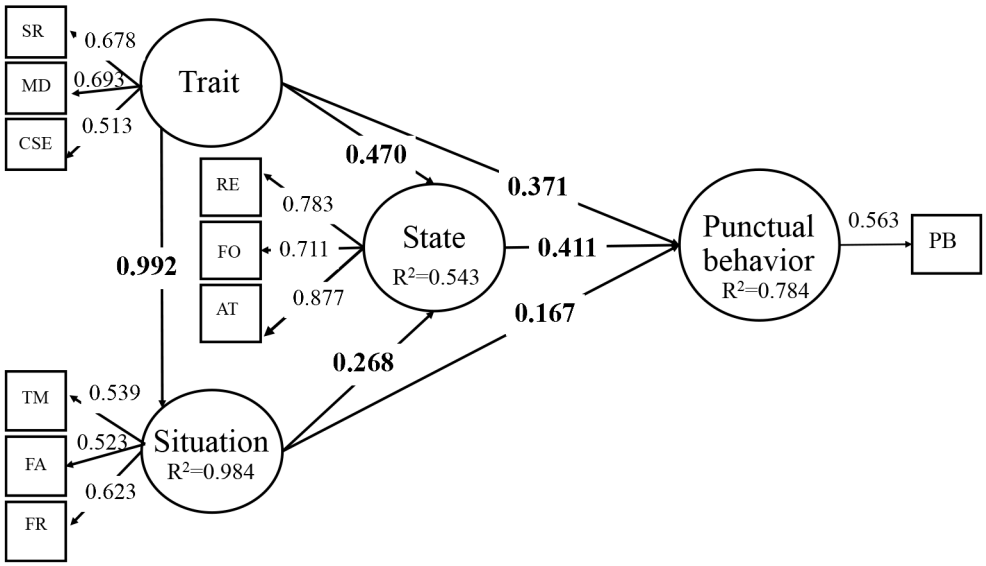

Figure 1: Path model of the antecedents of punctual behavior in undergraduate students. All coefficients are significant at p<.05

For the measurement model of psychological state latent variable (Model 2, Table 4), the highest factor loading of 0.877 was attitude towards punctual behavior (AT), followed by rational envision (RE) (factor loading = 0.783), and future orientation toward punctuality (FO) factor loading = 0.711). For the measurement model of psychological trait latent variable, the highest factor loading of 0.693 was moral (dis)engagement (MD), followed by self-regulated learning (SR) (factor loading = 0.678), and core self-evaluation (CSE) (factor loading = 0.513). For the measurement model of situational factor latent variable, the highest factor loading of 0.623 was peer academic influence (FR), followed by lecturer moral enhancement (TM) (factor loading = 0.539), and family positive atmosphere (FA) (factor loading = 0.523).

For the structural model (Table 4, Figure 1), punctual behavior latent variable was directed affected by psychological state latent variable with the highest path coefficient of 0.411 (p<.05), followed by psychological trait latent variable (path coefficient = 0.371, p<.05), and situational factor latent variable (path coefficient = 0.167, p<.05). The direct and indirect effects of the three antecedent latent variables could explain the punctual behavior latent variable with 0.784.

The psychological state latent variable was directly affected by psychological trait latent variable with the highest path coefficient of 0.470 ($p<.05$), followed by situational factor latent variable (path coefficient = 0.268, $p<.05$). The direct and indirect effects of these two latent variables could explain the psychological state latent variable with 0.543.

Model comparison

As for model comparison between model 1 (reduced model) and model 2 (full model), the results revealed that the chi-square of both models were still statistically significant. But the model 2 was more robust in terms of chi-square divided by df which was less 2.00. Moreover, the AIC index in model 2 was much less than in the model. In the additional path from psychological trait latent variable to situational factor latent variable was added in model 2 which yielded better fit indexes and higher percentage of the explanation of punctual behavior latent variable (Table 5). Thus, these results supported hypothesis 2.

Table 5: Nested model comparison

Model	χ^2	p-value	df	2df	AIC: χ^2-2df	χ^2/df
M1 Nested (reduced)	103.267	0.00	26	52	51.267	3.972
M2 Full model	35.399	0.047	23	46	-10.301	1.539

Discussion

Hypothesis 1: Model 1 provides a good fit to the data. All five paths were statistically significant. The results support all sub-hypothesis of five direct and two indirect effects. All the effects together could account for 76.8% of variance in punctual behavior. The results were consonant and gave strong support to the interactionism paradigm (Endler & Magnusson, 1976). Evidently, these results also give new and complex scientific evidence for understanding the origin of puncture behavior in university students.

Hypotheses 2: Model 2 is an extension of a nested model 1. The second model simply has one more direct path from psychological trait to situational variable. The strong direct path pinpoints the appropriate relationship among personal and situational variables. It gives strong support to the conception that the person's characteristics played important roles in their perceiving interpreting and reporting the situational qualities.

Perceived situational variables were found in many antecedent models of important behaviors of Thai respondents from social support giving In Thai elderlies, to critical buying behavior and especially dedicated-learning behavior in undergraduate students (Wichienthano, et al., 2021; Tangchitprattanar, Bhanthumnavin, Bhanthumnavin, & Pimthong, 2019; Bualar, 2019). The present results add more support to this phenomenon.

Hypothesis 2 focused on model comparison. Model 1 is now a reduced model nested in model 2 which had one more direct path, using the same data. The more complex model 2 had all values of fit indices closer to the criterion values than the first model. With one more path, model 2 showed that punctual behavior could be accounted for 1.6% beyond model 1.

AIC statistics (Shipley, 2013) for model comparison in Table 5 shows lower values for model 2 (full model) which signified better fit to the data than model 1. In addition, the mean -square fit value (Chi-square/degree of freedom) of model 2 (full model) is 1.539 which is consistent with the criterion (less than 2.00). While model 1 (reduced model) has the value of 3.972. Thus, according to these criteria, the full model 2 has model fit qualities to the data better than model 1. Evidently, hypothesis 2 was supported in many aspects.

The role of the psychological trait latent variable of model 2 (Figure 1) in comparison to model 1, showed stronger association with all the three latent variables. The psychological trait latent variable in the full model 2 had one direct and three indirect paths towards punctual behavior. However, the perceived situational latent variable when having a mediating role (Figure 1), its associations (or standardized path coefficients) with the psychological state latent variable and the punctual behavior, decreased slightly in model 2 which were unexpected. (0.268 in the full model, and 0.303 in the reduced model). Similarly, situation factor to punctual behavior had coefficients of 0.877 in the full model and 0.883 in the reduced model. In other words, the perceived situation (in model 2) showed weaker effects.

In the full model 2, situational latent variable was found to be accounted for 98.4% by psychological trait latent variable. Furthermore in the measurement model of the situation latent variable, the factor called friendship academic support (FR) had the highest factor loading (FR = 0.623) than teachers' moral encouragement (TM= 0.539). These results were consonant with the study of perceived social support from these three sources in 874 Chinese college students (Yang, Zhu, & Hu, 2021).

In another study which focused on the three types of social relationships in which academic engagement of 3,323 teenage school students in the US, the UK, and Canada, report of parental relationship showed the weakest association among the three sources (Collie, et al., 2016). While, in this present study, family atmosphere (FA), showed the lowest, but still not far from that of teachers' moral encouragement (TM).

The effect of parent and family can still be detected in college age in Thai and Chinese students, but not in the western countries, was confirmed by a meta-analysis study employed 8 studies (Wang, 2022). In more detail, it was found that the authoritative parenting was reported by the students with low academic procrastination. As noted, the authoritative parenting seems to have similar definition to the family atmosphere (FA) in the present study.

SEM full antecedent model of punctual behavior

The results from this study have pinpointed that the psychological traits of the respondents played the most important role among the antecedent of punctual behavior. Psychological traits latent variable which was represented by two of the three components, namely, moral (dis)engagement and self-regulated learning, one direct and three indirect paths towards punctual behavior via perceived situational latent variable and psychological State latent variable (Figure 1).

In addition, inter correlation matrix (Table 2) revealed that future orientation (FO) about punctuality attitudes (AT) toward punctual actions and self-regulated learning (SR) were the three psychological characteristics which showed the highest positive relations in consecutive order with punctual behavior. Furthermore, these three variables were positively related to moral (dis)engagement (MD) and rational envision (RE). The self-regulated learning, moral disengagement and rational envision were all positively related to perceived friendship academy support (FR) (Table 2).

In conclusion, punctual behavior can be explained by all three psychological states (FO, AT, and RE) Together with two psychological traits (SR and MD) and one perceived situation (FR). Thus, the correlation coefficients (Table 2) confirm the SEM results of model 2 (Figure 1).

Strengths and Limitations

As mentioned above punctual behavior has not been popularly investigated (Dishon-Berkovits & Koslowsky, 2002). Even at present punctual behavior was found more often in more advanced statistical studies using work context of employees. However, psychological and personality variables have gained more acceptance among researchers. On the other hand, situational variable was often self-reported as perceived situations (Parker, Williams & Tuners, 2006; Hollet, et al., 2020). Thus, present study can be considered as one of the most comprehensive with rather advanced statistical analysis in students' punctuality. Using non-experimental design (cross-sectional data) is of less obstacle to view the results as cause-effect model due to the convergence of the three methods used. They are first, the antecedent models were strongly based on theoretical paradigm of interactionism. Secondly, all the assessment tools for major dependent and independent variables had been constructed and validated using factor analysis and other advanced statistics. Thirdly, SEM or path analysis with latent variables, together with the intercorrelation matrix among the major variables can ensure more credibility of the concluding results.

Recommendations and conclusion

Theoretical suggestions are three folds. First, the construct of punctuality should be more extensively pursued. Punctual Behavior should not only be "an end" which has limited the more advanced studies in the field. Punctuality also should be examined as "a mean to an end", as well. For example, punctual behavior can reflect moral identity, professional identity, or social identity.

Secondly, the wider view of punctuality can be linked to many new constructs and theories such as, the psycho-moral strength construct (Bhanthumnavin, in progress) or to the theory of planned behavior (Ajzen, 1991) for creating interesting hypotheses.

Third, for teachers in human development personnel as we last researchers and theorists, training models and evaluation tools and practices should be based on stronger psychosocial enhancement of students. Training models based on the results of the present study should have at least four components: 1) the model for future orientation and self-control 2) module for preventing the use of moral disengagement 3) The model for Academy social support evening to peers, and 4) the direct training of relevant punctual behaviors of students.

These recommended projects are based on a positive psychological approach. Prevention and promotion of desirable characteristics of students for punctuality in a wide variety of situations can ensure more success and sustainability.

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