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Procrastination, Dependence and Social Loafing: Comparison in High/Low Task Visibility between Active/Passive Procrastinators

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ABSTRACT

The purpose of this study included: To investigate the correlation of active / traditional procrastination motivation, dependent personality and social loafing phenomenon, also clarify whether such passive procrastinators like traditional ones with similar motive and test of active / passive procrastinators with different dependent personality and social loafing phenomenon. Explore the relation of group task assignment with social loafing phenomenon. Control group task assignment to compare the social loafing phenomenon variety of active / passive procrastinators with the high / low task visibility.

The subjects sampled 221 elementary students. The research tools include procrastination behavior scale, active procrastination scale, traditional procrastination scale, task visibility scale, dependent personality scale, social loafing phenomenon scale and statistical analysis by structural equation model, multi-group analysis, t-test, and ANOVA. The results were: the model of active and passive procrastinator did not have a significant difference. Active procrastinators had higher pressure preference, ability to deadline, and intent to delay than passive procrastinators, but with a similar degree of antipathy task and fear of failure and with the passive procrastinators. Passive procrastinators with the low visibility of the task resulted in higher social loafing phenomenon instead of active procrastinators. Implications for theory, practice and research are discussed.

Keywords

Procrastination motivation, Dependent personality, Social loafing, Task visibility, Active / passive procrastinators.

Introduction

The advance of modern technology has contributed to an overdependence on mobile phones, the Internet, email, social media, and online games among many people, and this extends to elementary school students, which can negatively affect their ability to focus and cause procrastination toward tasks at hand [1]. Unnecessarily delaying assignments often leads to unhealthy emotions such as anxiety, depression, and shame, and it can lead to condemnation [2,3]. In the modern school learning environment, which advocates autonomous and team learning, delay or failure to complete school work is a common and serious problem among elementary school students. One early piece of research indicated that 46% of students experience academic delays [4]. More recent research found that almost 40% of elementary school students delay academic tasks, and this phenomenon becomes more prevalent as they age [5]. The recent literature indicates that the problem of procrastination among elementary school students has worsened since studies began; determining the reason for this is worthy of further research.

Traditional procrastination has been studied for decades and can be explained using numerous theories, including self-worth theory, rational emotive behavior theory, motivation of achievement theory, and learned helplessness. Self-worth theory believes that individuals procrastinate to protect self-worth. In an academic context, because individuals fear that their failure in academic performance may reflect their incompetence, they exhaust all means possible to avoid academic tasks before their performance is evaluated, creating excuses in advance for their undesirable achievement evaluation results, thereby reducing

the loss of self-competence value [6]. Rational emotive behavior theory contends that self-criticism and unfounded fear can lead to individual procrastination [7]. Specifically, the theory assumes that individuals doubt their ability to accomplish a given task and fear negative outcomes or failure; hence, they procrastinate [8]. The motivation of achievement theory proposed by McClelland [9] states that when individuals' need to avoid failure is higher than their need for success, they adopt maladaptive learning strategies to delay their academic tasks [10]. Spada, Hiou, and Nikcevic [11] argued that procrastination is related to negative beliefs. Seo [3] and Wolters [12] even noted that certain procrastination behaviors reflect individuals' fear, lack of interest, or even resentment toward academic tasks; such individuals are generally those who expect to fail.

Traditional Procrastination Motivation

After years of research, traditional interpretations have contended that procrastination arises due to negative emotions toward academic tasks [13,14], a desire to escape achievement goals [3], low intrinsic motivation and high extrinsic adjustment, lack of self-confidence and self-regulated learning [15], lack of adaptability [16], susceptibility to stress [17], procrastination on academic tasks [18], and low academic performance [19]. Therefore, traditional procrastination behaviors are closely associated with avoidance motivations, negative emotions, anxiety, depression, and poor performance [15,20,21]. Research on traditional procrastination behaviors has mainly focused on individuals' anxiety in assessing tasks, difficulties in decision making, confrontation with authoritarianism, lack of persistency in opinion, fear of possible failures, resentment toward academic tasks, and excessive perfectionism [22]. Ozer, Demir, and Ferrari [23] and Steel [24] used meta-analysis and determined two factors as the main causes of traditional procrastination, namely individuals' fear of failing in academic tasks (fear of failure) and individuals' resentment toward academic tasks (task resentment). Accordingly, this study used fear of failure and task resentment as the two indicators to assess traditional procrastination motivation.

Active Procrastination Motivation

Although research on traditional procrastination has been conducted for decades, only recently was it found that some individuals who exhibit procrastination behaviors can actually perform well. Chu and Choi [25] used the level of intrinsic active procrastination motivation as a standard of division to propose two procrastinator types: active and passive. Active procrastinators proactively and intentionally procrastinate, but they have strong learning motivation under time pressure which means they complete tasks before deadlines and perceive academic satisfaction [26]. By contrast, passive procrastinators postpone their tasks until the last minute and doubt their ability to fulfill the tasks [27]. Filled with guilt and anxiety, passive procrastinators exhibit poor academic performance [18]. Such a division method may be conducive to determining the intent behind passive and active procrastination motivation. Regarding behaviors, both types of procrastinators may demonstrate explicit procrastination behaviors when faced with a far-away deadline. However, before the deadline is reached, active procrastinators will actively participate in task planning and organization, whereas passive procrastinators will tend to underestimate the time to completion and may eventually abandon the task, resulting in failure [28]. The self-determination theory deems that behaviors with active motivations as well as behaviors that conform to values and intrinsic adjustment are considered task-oriented and allow individuals to perceive more positive feelings [29]. Regarding temporal motivation theory, when individuals feel that high expectations are placed on them to complete a task (i.e., the task is urgent or has short-term benefits), task efficacy increases. Consequently, individuals are prone to reduce procrastination behaviors. Conversely, if the task is of low priority, individuals tend to delay the task longer or increase procrastination behaviors [24]. Accordingly, active procrastinators make deliberate decisions to procrastinate. Moreover, they choose whether to procrastinate according to the significance and urgency of the task. In the present study, the active procrastination scale of Chu and Choi [25] revised by Li and Lin [30] was adopted. The scale contains three indicators for assessment of active procrastination motivation, namely active intent to delay, pressure preference, and ability to meet deadlines.

Procrastination Motivation, Dependent Personality, and Social Loafing

Regardless of motivation, derivative procrastination behaviors can wrongly imply that an individual intends to rely on others for task completion when labor is divided in a group. This can lead to procrastinators being considered "free riders" who share in the sense of accomplishment when a task is completed without contributing. Such social loafing phenomena refer to individuals reducing their physical, perceptual, and cognitive efforts by allowing others to take full responsibility in a group learning task [31]. Empirical studies have shown that social loafing can cause other members of the group to feel a sense of resentment or injustice [32]. Therefore, exploring whether procrastination behaviors are related to social loafing and how to prevent social loafing has clear theoretical and practical research value.

Social impact theory postulates that the demand for work resources is dispersed during teamwork, which means that the effort per individual decreases. Arousal reduction argues that learning outcomes should not be deemed a personal problem. Individuals who are unwilling to bear the entire risk of the group tend to develop learning inertia. Dispensability of effort emphasizes that when an individual's contribution to a group is superfluous, social loafing occurs. The theory of basic attributes states that when individuals believe that their contribution is unimportant to the group or that they cannot successfully facilitate group achievement, they tend to reduce their efforts [33].

Although the aforementioned theories have different views on social loafing, they all indicate that a dependent personality may contribute to social loafing. Ferrari [34] suggested that procrastination implies laziness, which constitutes interpersonal dependence on others. A dependent personality is characterized by expecting others to provide contributions, shifting responsibilities and surrendering personal destiny to others, and overly relying

on others [35]. Consequently, the connection between individual efforts and final outcomes is relatively weak, and individuals' dependence on others to reduce their own efforts may also lead to social loafing. However, hypotheses in the literature have generally been based on traditional procrastination. Given the lack of comparison between traditional and active procrastination, the present study conducted an in-depth exploration on this topic. Active procrastinators have positive metacognitive beliefs [36]. They tend to manage unexpected events through procrastination and adopt problem-solving strategies in response to urgent tasks [30]. Therefore, the purpose of active procrastination is not to depend on others, and it may thus have a relatively weak relationship with dependent personality. Conversely, Wells [37] deemed that traditional procrastinators lack confidence in cognitive efficacy and doubt their own task performance, such as individuals with typical self-regulation failure [15]. Negative metacognitive beliefs, such as worry, frustration, and anxiety [38] as well as task anxiety, resentment, or dependence [23,24], may be associated with traditional procrastination. Therefore, traditional procrastination motivation may be more highly correlated with dependent personality. On the basis of the aforementioned literature, this study proposed the following hypotheses:

Hypothesis 1.1: Active and traditional procrastination motivations both have significant relationships with dependent personality, with traditional procrastination motivation being more highly correlated than active procrastination motivation.

Hypothesis 1.2: Dependent personality directly affects social loafing.

Active/Passive Procrastinators in Procrastination Motivation, Dependent Personality, and Social Loafing

Since 2005, two main studies have explored active procrastination, which was achieved by sampling individuals with explicit procrastination behaviors and then dividing them into active and passive procrastinators according to their scores on an active procrastination scale [25,26]. Their findings following assessment with a procrastination behavior questionnaire and the active procrastination scale revealed that active procrastinators have three motivation traits: high and active intent to delay, high pressure preference, and excellent ability to meet deadlines. By contrast, relatively speaking, passive procrastinators have low active intent to delay, low pressure preference, and poor ability to meet deadlines; they are considered equivalent to traditional procrastinators. This division assumes that active and passive procrastinators have a similar level of procrastination in terms of explicit behaviors, but they have different motivations. This hypothesis has been tested by numerous subsequent studies.

Choi and Moran [26] believed that active procrastinators have a certain degree of confidence and stability in addition to the ability to reorganize and reorder task activities. Thus, they can relieve stress, maintain intrinsic motivation, and manage unexpected events [39]. Steel [24] also contended that active procrastinators exhibit high task interest, a need for achievement, and a keen orientation toward tasks, all of which can be regarded as strategies in response to time management [26]. In terms of passive (traditional) procrastinators, Baumeister (2002) suggested that self-awareness can enable individuals to focus their attention on an unpleasant experience, their own shortcomings, and poor performance. Thus, they have low expectations toward the task and doubt their own competence. Such negative feelings can push individuals to procrastinate, inducing poor performance. Ferrari [5] argued that cognitive activities can burden passive procrastinators, and therefore their performance under pressure is not satisfactory (e.g., failing to prepare for and avoiding academic work). Consequently, passive procrastinators are often portrayed as lazy, dependent on others, time wasting, and lacking time management skills [20]. However, regardless of procrastinator type, once a procrastinator expects others to take responsibility and complete the task for a group assignment, other members of the group may feel hostile toward the procrastinator [40]. Moreover, the procrastinator may not be acknowledged by other group members who feel the obligation to complete the task [41] and consider the procrastination behavior as detrimental to group success. If procrastinators shift responsibility for the group assignment task to others, the social loafing effect may intensify, causing hostility between peers in the group. Active procrastinators exhibit self-commitment and self-responsibility [41]. Although they may purposely procrastinate, they can still complete the task eventually, which means that social loafing may not increase significantly. This study took the active and passive procrastinators division from the literature [25,26] and explored the differences in active and traditional procrastination motivations between these groups in order to verify the statement of Ferrari and Pychyl [42] that passive procrastination is more linked to dependent personality and induces higher social loafing. Accordingly, the following hypotheses were also proposed:

Hypothesis 2.1: Passive and active procrastinators are significantly different in terms of traditional procrastination motivation, with passive procrastinators exhibiting higher traditional procrastination motivation.

Hypothesis 2.2: Passive and active procrastinators are significantly different in terms of prevalence of dependent personality and social loafing, with passive procrastinators exhibiting more of both traits.

Relationships among Active/Passive Procrastinators, Task Visibility, and Social Loafing

In theory, social loafing implies that an individual tends to contribute less when performing a group task. Individuals seek to profit by exerting less effort when working in a team. During teamwork, there is a low correlation between the efforts of a procrastinator and the final outcome when social loafing occurs [42]. Passive procrastinators tend to rely on others in the event of a group task assignment [34]; this placing of responsibilities on others may result in social loafing. Because active procrastinators can still complete the assigned task in time, social loafing may not occur. The question of whether active and passive procrastinators exhibit differences in social loafing due to other factors is intriguing, and individual task visibility may serve as the mediator [32].

Task visibility refers to others' observations of the level of task division and the relative contribution of an individual in a group. The conventional perspective deems that once interdependence in

teamwork increases, an individual's task visibility may be attenuated by the increase in others' contributions to the group [43]. When an individual's contribution is inconspicuous or unrecognizable in a group, he or she cannot claim direct connection with the group achievement. Therefore, those who rely on others and do not fully exert their efforts believe that the benefits are more important than the engagement process. Such passive procrastinators may feel that they do not contribute much to the team, causing them to exhibit more social loafing [33].

Conversely, another cause of social loafing may be from the high task visibility of an individual task [32]. This argument assumes that social loafing may not occur if an individual contribution can be fully integrated into the group task while the responsibility and reward are evenly distributed [44]. When an individual who is fully engaged in a task exerts maximum effort despite other members' lack of contribution to the group, social loafing may occur when the fully engaged individual can no longer tolerate the unfairness of sharing the same benefits with others while working harder [45]. Active procrastinators are assumed to be affected by rational and positive metacognitions, and they can theoretically fill the gap between motivation and actions rather than reducing their efforts through social loafing because of the premise of possessing responsibility (Searle, 2001). Although active procrastinators procrastinate when conducting an assigned task, effective time management can enable them to handle urgent or important events, enabling them to achieve the designated learning objectives on time [25,26]. Active procrastinators may have high individual task visibility, but whether social loafing is induced by the acknowledgement of their own individual task visibility being higher than that of other group members requires further discussion. Therefore, the third research motivation of this study is to clarify the relationships between active and passive procrastinators under high/low task visibility and social loafing conditions. The results may help refine the active procrastination theory as well as broaden the applications of active and passive procrastination in the field of educational psychology and counseling. On the basis of the aforementioned literature, the following additional hypotheses were proposed:

Hypothesis 3.1: Passive procrastinators exhibit a high level of social loafing in the event of low individual task visibility.

Hypothesis 3.2: Active procrastinators exhibit a high level of social loafing in the event of high individual task visibility.

In summary, this study explored the relationships among procrastination motivation, dependent personality, and social loafing. Through sampling active and passive procrastinators, this study examined the differences between the two in terms of procrastination motivation, dependent personality, and social loafing. By controlling task assignment and task visibility, the relationship between being an active or passive procrastinator and social loafing were explored. This topic is particularly vital given current educational settings that feature a prevalence of group-task-oriented academic assignments in elementary schools. In addition, this study also examined the suitable conditions under which active and passive procrastinators can reduce social loafing by controlling task visibility. This study extends understanding regarding the learning characteristics of active procrastinators and provides unique research implications regarding educational settings.

To improve the research validity, this study adopted a domain specificity perspective, which has been a trend of research on motivation in recent years. Previous studies have revealed that an individual's level of procrastination, motivation, and dependent personality may be associated with his or her perception of the importance, dullness, difficulty, and value of academic tasks [13,18,23,24,46,47]. Therefore, the present study chose primary subjects that the participants found difficult as the background setting for scale measurement. These main subjects included language arts, mathematics, and natural sciences. Because task characteristics are often related to avoidance motivation, a self-handicapping mentality, and procrastination behavior, students may seek to postpone task assignment by any means possible.

Pressure in the form of subject tasks was applied in this study to assess the participants' procrastination motivation in a relatively high-stress scenario. Subsequently, active and passive procrastinators were sampled to discern the differences between the two in terms of active and traditional motivations. Furthermore, the relationships between the two types of procrastinators and social loafing were explored by altering different conditions such as task visibility. To increase the validity of the social loafing measurements, the participants were investigated in the context of a group task assignment. Evaluation by their peers rather than self-assessment by the participants provided the basis for a more objective investigation of social loafing [42].

In summary, the relevance of clarifying the difference between active and passive procrastination motivation from both theoretical and practical perspectives has been established. Active procrastinators can possess individual learning characteristics that practitioners are unfamiliar with, whereas passive procrastinators resemble traditional procrastinators and often show early signs of giving up or dropping out of school [10]. Furthering the understanding of educational psychologists and counselors regarding the motivations, personality characteristics, and learning patterns of the two procrastinator types as well as identifying the effects of active/passive procrastination on social loafing under different task visibility settings may aid the development of effective counseling or teaching strategies to prevent the negative effects of procrastination and social loafing on students.

Methodology

Research Framework

Figure 1 shows the research framework of stage 1, which mainly evaluated the research model of active/traditional procrastination motivation, dependent personality, and social loafing and compared the differences between active/passive procrastinators in terms of procrastination motivation, dependent personality, and social loafing. Following the literature review, this study assumed that the two procrastination types directly affect dependent personality,

but to different degrees; moreover, dependent personality directly affects social loafing. The research framework of stage 2 is presented in Figure 2. Through sampling participants from the active/passive procrastinator groups, the difference between the two procrastinator types in terms of procrastination motivation, dependent personality, and social loafing was first examined. Subsequently, the relation between high/low task visibility and social loafing was evaluated by controlling the group task variable. This study sought to determine the differences in learning motivation, task characteristics, and social loafing among active/passive procrastinators.

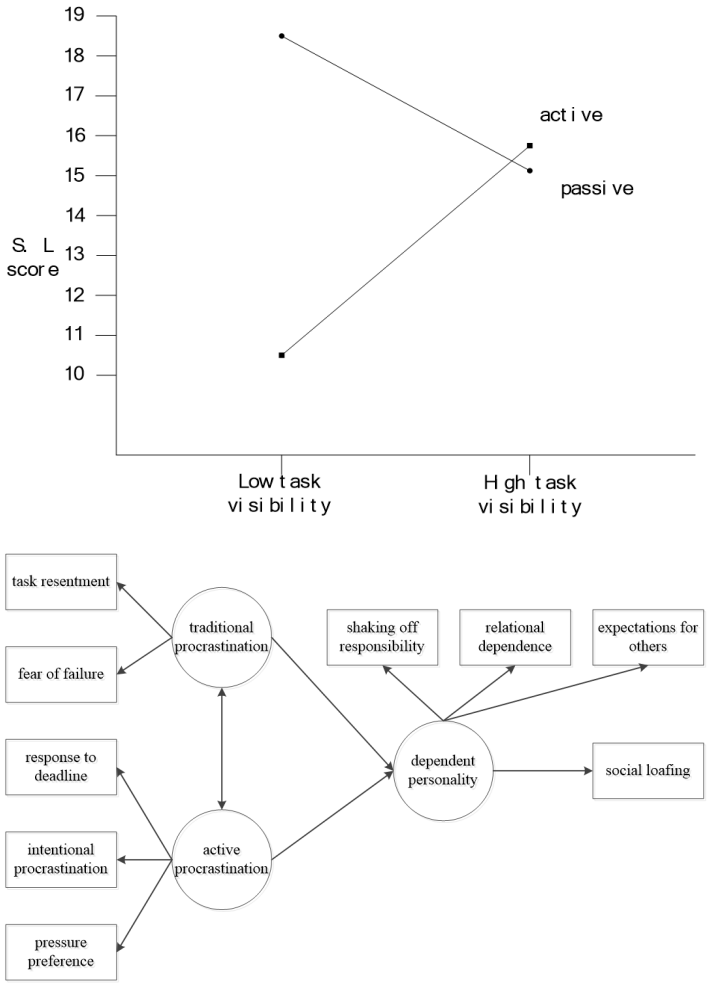

Figure 1: The research models of active/traditional procrastination motivation, dependent personality and social loafing.

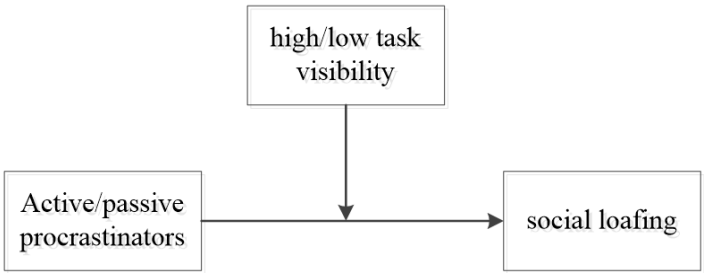

Figure 2: The evaluated the relationship between active/passive procrastinators and the change to social loafing under high/low task visibility.

Participates and Sampling

To ensure that the sample was consistent in terms of the students' learning tasks background and in consideration of the psychological pressure perceived by the procrastinators during academic tasks, this study recruited elementary school students aged 11–12 years (i.e., fifth and sixth graders) in Taiwan. In the first stage, three elementary schools were sampled, and 221 students volunteered as participants. Following the steps of Chu and Choi, the second stage sampled active/passive procrastinators, selecting 62 active procrastinators, 102 passive procrastinators, and 57 nonprocrastinators. In the third stage, the active/passive procrastinators who were assigned with a group task were sampled to determine the main factors of social loafing. Therefore, the active/passive procrastinators who were assigned with an individual task were excluded. The final number of participants was therefore 32 active procrastinators and 36 passive procrastinators, with 6 (8.8%) boys and 62 (91.2%) girls. Two (2.9%) of the participants came from economically disadvantaged households, 53 (78.0%) came from economically average households, and 13 (19.1%) came from economically well-off households. Finally, 1 (1.5%) lived in northern Taiwan, 65 (95.6%) in central Taiwan, and two (2.9%) in southern Taiwan. In summary, the participants were primarily female elementary students from economically average households in central Taiwan.

Research Tools

The research tools including as the followings:

Assessment of Procrastination Behaviors

The Procrastination Assessment Scale for Students developed by Solomon and Rothblum [4] was employed in this study to measure procrastination. The scale contains six academic areas where students often procrastinate, namely "writing a term paper," "studying for an exam," "keeping up with weekly reading assignments," "performing administrative tasks," "attending meetings," and "performing academic tasks in general." This scale mainly measures the frequency of individuals' explicit procrastination behaviors during the preparation period prior to a subject examination. Participants were asked to respond using a 5-point Likert scale, ranging from never procrastinate (1) to always procrastinate (5) for a total score of 6–30 points. Regarding the internal consistency, the Cronbach's α coefficient of this scale is 0.82, proving its reliability [48]. A mean score higher than 3 indicated participants who exhibited more procrastination behaviors prior to academic task preparation.

Assessment of Active Procrastination Motivation

The active procrastination scale [26] modified by Lee and Lin [30] was used to measure active procrastination motivation. The scale is composed of three factors: intent to delay, pressure preference, and ability to meet deadlines. The scale contains a total of nine items, including "pressure allows me to be more focused," "I deliberately postpone certain tasks to comply with my personal habit," and "I can finish tasks according to schedule and within the specified period." The Cronbach's α coefficients of the subscales are 0.80, 0.79, and 0.79, respectively. Confirmatory factor analysis revealed that the explained variance of each factor is higher than

50%. Using different samples and statistical analyses, the ideal discriminant validity, convergent validity, and cross-validation may be obtained. A 6-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (6), was used to evaluate participants. A high score indicated that the participant had higher motivation to actively procrastinate.

Assessment of traditional procrastination motivation

A modified version of the Aitken Procrastination Inventory was used to assess the participants' motivations for performing traditional procrastination. The items underwent principal component analysis, and two factors—fear of failure and task resentment—were extracted using oblique rotations, with eigenvalues of 2.81 and 2.33, respectively. The cumulative explained variance reached 64.24%, indicating construct validity. The scale contains eight items, including "if a course does not benefit me, I do not want wish to voluntarily preview my studies," "it often takes longer than I expected to finish the homework for courses I dislike," "if I feel that I will perform poorly in a course, I would rather do other things first," and "if I don't prepare beforehand, I will have an excuse as to why I perform poorly." Internal consistency reliability analysis revealed a Cronbach's α of 0.81 for the task resentment subscale and of 0.78 the fear of failure subscale, indicating that the scale is reliable. A 6-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (6), was used for evaluation. A high score indicated that a participant had higher motivation to perform traditional procrastination when faced with academic tasks.

Assessment of the social loafing effect

This scale was amended from the Social Loafing Scale developed by George [49] to evaluate the reduced efforts of individuals during the learning process of group tasks. This scale requires group leaders to conduct objective evaluation of their members in the context of a group task assignment instead of directly demanding responses from individual participants. The scale consists of four items, namely "he/she tends to delegate his/her responsibilities to others," "he/she expects others to do more," "he/she rarely participates in discussions," and "he/she always expects others to complete his/her own academic work." Principal component analysis with a factor that was extracted without rotation revealed an eigenvalue of 3.21 and explanation of variance reaching 80.16%, confirming construct validity of the scale. The scale recorded a Cronbach's α of 0.92 in the internal consistency analysis, proving its reliability. A 6-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (6) was employed as the evaluation method. A high score indicated that other members of the group thought that the participant was likely to perform social loafing on task assignments.

Assessment of Dependent Personality

A scale was designed according to the characteristics and definitions of dependent personality in the Diagnostic and Statistical Manual of Mental Disorders–IV as described by Millon and Davis [35] to assess the level at which individuals depend on others. The scale contains three main factors: 1) Abdication of responsibility—feeling of helplessness about their own competence and transferring responsibility and personal destiny to others. 2) Relationship dependency—inability to work independently and must manage life based on relationships with others. 3) Expectations for others—expect others to contribute and provide support in order to avoid one's own responsibility. The self-report scale contains nine items, including "I often feel helpless about my ability," "I am willing to let others decide my destiny," and "I expect others to take good care of me." The scale underwent item analysis, reliability analysis, and factor analysis to evaluate its reliability and validity. The internal consistency reliability analysis revealed that the three subscales received Cronbach's α scores of 0.85, 0.74, and 0.79, respectively, with the cumulative total variance explained reaching 64.09%. This confirmed the reliability and construct validity of the scale. A 6-point Likert-type scale, ranging from never (1) to always (6), was employed as the evaluation method. A high score indicated that the participant had a more explicitly dependent personality.

Assessment of Task Visibility

Amended from the task visibility scale established by George [50], this scale assessed the extent to which an individual's contribution to the group task learning process is valued. Administered during group tasks, the scale was self-reported by individuals in each group. The scale includes items such as "my group leader is aware that I receive more workload," "my group leader acknowledges the endeavor I invested in work," "my group leader is aware of my importance to the completion of group tasks," "my group leader is aware that I play a crucial role in the group," and "my group leader acknowledges my commitment and devotion to the completion of group tasks." The scale underwent principal component analysis, in which a factor was extracted without rotation, with an eigenvalue of 3.08, and the explanation of variance reached 61.57%, confirming the construct validity of the scale. The scale had a Cronbach's α of 0.84 in the internal consistency analysis, proving its reliability. A 6-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (6), was employed as the evaluation method. A high score indicated that the group leader was aware of the participant's workload, importance, and contribution.

Research Process

Focusing on elementary school students in Taiwan, this study first selected participating schools through a sampling plan. Subsequently, fifth- to sixth-grade students were sampled to officially participate in the research. The setting of this experiment was the academic tasks of key compulsory courses that children can find both boring and difficult, such as language arts, mathematics, and natural sciences. Using the procrastination behavior scale, active procrastination scale, traditional procrastination scale, dependent personality scale, and social loafing phenomenon scale, this study aimed to determine the relationships among procrastination, dependent personality, and social loafing. Prior to the experiment, the participants were informed that should they perceive any mental discomfort or trouble during the experiment, they could withdraw from that particular segment or from the study. The participants were guaranteed that their withdrawal from the experiment would not affect their rights (e.g., academic performance) in any way.

This study differentiated between the two types of procrastinators according to the responses of all participants on the procrastination behavior scale and active procrastination scale as well as the two-stage classification method [25]. First, a mean score of 3 points (the median value in a 5-point Likert scale) for each item on the procrastination behavior scale was used to discern academic procrastinators from nonprocrastinators. This confirmed the participant's explicit procrastination behaviors. Subsequently, a mean score of 3.5 points (median value in a 6-point Likert scale) for each item on the active procrastination scale was used to differentiate active procrastinators from passive procrastinators. Respondents with a mean score > 3.5 points for each item on the scale were deemed to have high active procrastination motivation. This approach revealed that both active and passive procrastinators exhibited high explicit academic procrastination behaviors. However, they differed in the extent of their active/passive procrastination motivation.

After the active/passive procrastinators in the previous stage were determined, they were assigned into groups (four people per group) to complete academic tasks for key compulsory courses, with each group selecting a leader who was fair and actively engaged to supervise the completion of the group task. After the completion of the academic tasks, each group leader evaluated the individual contribution of each member in the group task (high/low task visibility), which enabled further division of the participants into four groups: active procrastinators with high task visibility, active procrastinators with low task visibility, passive procrastinators with high task visibility, and passive procrastinators with low task visibility. Through this division, this study could examine the relationship between active/passive procrastinators with high/low task visibility and social loafing.

Statistical analysis was conducted using t tests and multiple-sample analysis to explore the differences between active/passive procrastinators in terms of traditional/active procrastination motivation, dependent personality, and social loafing. Subsequently, analysis of variance (ANOVA) was employed to examine the differences in social loafing among the aforementioned four groups of participants, thereby clarifying the relation between high/low task visibility and social loafing for active/passive procrastinators during group tasks.

Results

Difference between the Active/Passive Procrastinator Models

To verify Hypothesis 1, this study compared the difference between the active/passive procrastinator models in terms of procrastination motivation, dependent personality, and social loafing as well as the relationship between being an active/passive procrastinator and dependent personality. Multigroup analysis was conducted for model comparison. The models were estimated using the bootstrap maximum likelihood method. Assuming that the unconstrained models were equivalent across the two groups, the analysis results indicated that the two models exhibited differences in measurement weights, with $\Delta\chi^2 = 14.11$ ($p < .05$). The obtained ΔNFI, ΔIFI, ΔRFI, and ΔTLI were .05, .06, .01, and .01, respectively, among which the values of ΔRFI, and ΔTLI were not higher than .02. Assuming that the measurement intercepts were equivalent across the two groups, no significant variation was observed between the two models in terms of structural parameters, with $\Delta\chi^2 = .46$ ($p > .05$). The obtained ΔNFI, ΔIFI, ΔRFI, and ΔTLI were .00, .00, −.02, and −.02, respectively, all of which were not significantly higher than .02. Assuming that the structural parameters were equivalent across the two groups, the two models differed in structural covariance, with $\Delta\chi^2 = 10.85$ ($p < .05$). The obtained ΔNFI, ΔIFI, ΔRFI, and ΔTLI were .04, .05, .02, and .03, respectively, all of which were higher than .02; therefore, the main variation between the two models lay in the structural covariance. Pairwise parameter comparisons of the two models yielded a critical ratio of −1.76 with all absolute values being lower than 1.96. The aforementioned result indicated that the two models had a similar path relation. For active and passive procrastinator models, traditional procrastination had a significant relationship with dependent personality, with the standardized regression coefficients being .69 ($p < .05$) and .53 ($p < .05$), respectively (Figure 2). Active procrastination did not significantly affect dependent personality, with the standardized regression coefficients being .08 ($p > .05$) and .04 ($p > .05$), respectively. Dependent personality was significantly related to social loafing, with the standardized regression coefficients being .51 ($p < .001$) and .68 ($p < .001$), respectively, and the respective explained variance reaching 26% and 46%. These findings indicate that the main factor influencing dependent personality was traditional procrastination, rather than active procrastination, and that dependent personality was a vital factor influencing social loafing.

Model comparison	$\Delta\chi^2$	Δdf	p	ΔNFI	ΔIFI	ΔRFI	ΔTLI
Assuming model Unconstrained to be correct	14.11	6	.03	.05	.06	.01	.01
Assuming model Measurement weights to be correct	.46	2	.80	.00	.00	-.02	-.02
Assuming model Structural weights to be correct	10.85	3	.01	.04	.05	.02	.03

Table 1: Identity analysis of active/passive procrastinators in Group Tasks.

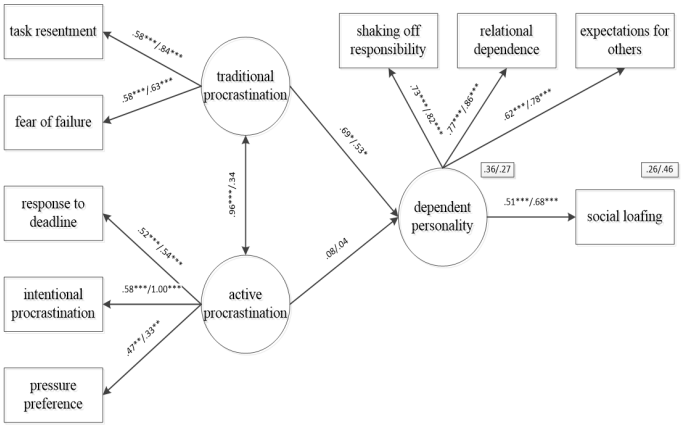

Figure 3: Explored the model difference in procrastination motivation,

dependent personality and social loafing between active/passive procrastinators.

Comparison between Active and Passive Procrastinators in Terms of Procrastination Motivation, Dependent Personality, and Social Loafing

The differences in terms of procrastination motivation, personality dependence, and social loafing were compared under the controlled condition of a group task assignment to verify the validity of Hypothesis 2. Using a chi-square difference test, both the passive and active procrastinators exhibited significant differences in the three observed variables of active procrastination. Regarding pressure preference, the means of passive and active procrastinators were 8.25 and 10.50, respectively, with $t = -5.63$ ($p < .001$). This shows that active procrastinators had a higher pressure preference than did passive procrastinators. Regarding the ability to meet deadlines, the means of passive and active procrastinators were 11.11 and 13.94, with $t = -7.73$ ($p < .001$), indicating that active procrastinators had a greater ability to meet deadlines. For intent to delay, the means of passive and active procrastinators were 11.14 and 12.91, respectively, with $t = -5.09$ ($p < .001$). This shows that active procrastinators had higher intent to delay than did passive procrastinators.

The two models exhibited no significant difference in both the observed variables of traditional procrastination. For task resentment, the means of passive and active procrastinators were 12.56 and 12.50, respectively, with $t = .10$ ($p > .05$). This implies that the two types of procrastinators had a similar extent of task resentment. Regarding the fear of failure, the means of passive and active procrastinators were 11.58 and 11.03, respectively, with $t = .63$ ($p > .05$). This shows that active and passive procrastinators felt a similar degree of fear of failure.

Group		Passive procrastinators (N=36)		Active procrastinators (N=32)		t value
Latent variables	Observed variables	M	SD	M	SD	
Active procrastination	Pressure preference	8.25	1.93	10.50	1.24	-5.63***
	Response to deadline	11.11	1.21	13.94	1.78	-7.73***
	Intentional procrastination	11.14	1.27	12.91	1.59	-5.09***
Traditional procrastination	Task resentment	12.56	2.21	12.50	2.18	.10n.s.
	Fear to failure	11.58	3.53	11.03	3.70	.63n.s
Dependent personality	Shaking of responsibility	9.14	4.00	7.40	2.71	2.06*
	Relational dependence	7.42	3.10	6.06	2.12	2.07*
	Expectation for others	8.36	3.56	8.47	2.51	-.14n.s.
	Social loafing	16.11	2.90	14.28	3.10	2.52*

Table 2: The difference in procrastination motivation, dependent personality and social loafing between active/passive procrastinators during group tasks.

With regard to dependent personality, the two models exhibited significant difference in two of the observed variables. For abdication of responsibility, the means of passive and active procrastinators were 9.14 and 7.40, with $t = 2.06$ ($p < .05$), indicating that passive procrastinators were more likely to abdicate responsibility compared with active procrastinators. For relationship dependency, the means of passive and active procrastinators were 7.42 and 6.06, respectively, with $t = 2.07$ ($p < .05$). Thus, passive procrastinators exhibited greater relationship dependency than did active procrastinators. For the variable of expectations for others, the means of passive and active procrastinators were 8.36 and 8.47, respectively, with $t = -.14$ ($p > .05$), revealing that both types of procrastinators had similar degrees of expectations for others. For social loafing without considering task visibility, the means of passive and active procrastinators were 16.11 and 14.28, respectively, with $t = 2.52$ ($p < .05$). This shows that in the event of group tasks, passive procrastinators demonstrated higher social loafing than did active procrastinators.

Relationships among Active/Passive Procrastinator, High/Low Task Visibility, and Social Loafing Under the Fixed Conditions of a Group Tasks

To verify Hypothesis 3, the changes induced by active/passive procrastinators with high/low task visibility in terms of social loafing were examined under the fixed conditions of a group task. Two-way ANOVA was employed to determine whether active/passive procrastinators with high/low task visibility exhibited differences in social loafing. Table 4 indicates that the two types of procrastinators demonstrated significant differences in social loafing ($F_{(1, 64)} = 31.53$, $p < .001$), whereas high/low task visibility did not appear to have a significant relationship with social loafing ($F_{(1, 64)} = 1.87$, $p > .05$). However, a significant interaction was observed of active/passive procrastination and high/low task visibility with social loafing ($F_{(1,64)} = 38.23$, $p < .001$). Because the main effect results were simplified and obtained without considering other conditions, no additional explanation or post hoc test was necessary.

	SS	df	MS	F值	
A (passive/active procrastination)	175.82	1	175.82	31.	53***
B (low/high task visibility)	10.40	1	10.40	1.	87n.s.
A × B (Interaction)	213.17	1	213.17	38.	23***
Error	356.86	64	5.58		
total	16463.00	68			

Table 3: Analysis of variance among active/passive procrastinators, high/low task visibility and social loafing in group tasks.

Subsequently, simple main effects analysis was conducted for a follow-up test. Table 4 shows a significant difference in social loafing between the active/passive procrastinators with low task visibility ($F_{(1, 15)} = 257.91$, $p < .001$). Passive procrastinators exhibited higher social loafing compared with active procrastinators. For those with high task visibility, however, active/passive procrastinators

demonstrated no significant difference in social loafing ($F_{(1, 49)}$ = .37, p > .05). For both passive and active procrastinators, high/low task visibility caused a significant difference in social loafing ($F_{(1, 34)}$ = 8.53, p < .01; $F_{(1, 30)}$ = 43.28, p < .001), with low task visibility generating higher social loafing than did high task visibility (Figure 3).

		SS	Df	MS	F value
Factor of active procrastination	How task visibility	257.91	1	257.91	32.50***
	High task visibility	1.82	1	1.82	.37n.s.
Factor of task visibility	Passive procrastination	58.87	1	58.87	8.53**
	Active procrastination	176.28	1	176.28	43.28***

Table 4: The summary of simple main effect test. ***p < .001.

Conclusion

This study examined the relationships among active/traditional procrastination motivation, dependent personality, and social loafing, thereby investigating to what extent active/passive procrastinators engage in social loafing by controlling for high/low task visibility. The results revealed no significant differences between the two study models (active and passive procrastinators). Compared with active procrastination motivation, traditional procrastination motivation had a more significant relationship with dependent personality. Furthermore, dependent personality was significantly related to the social loafing phenomenon, thereby supporting Hypothesis 1. Klassen et al. [15] argued that traditional procrastinators resemble typical examples of self-regulation failure with negative beliefs such as worries, frustration, and anxiety [38] as well as resentment or dependency [23,24]. Ferrari [34] believed that because people with dependent personalities expect others to contribute, shift responsibility to others, and escape from predicaments through interpersonal dependency, they tend not to pay detailed attention to the task, relying on others instead [51]. Passive procrastinators perceive a sense of "escaping from predicaments" through interpersonal dependency; that is, people who resort to procrastination and have dependent personalities may eventually make others complete tasks for them by projecting an image of helplessness, which stimulates others to act out of compassion and care. This leads to social loafing by an individual in a group [42].

This study's findings also confirmed that active procrastinators have higher pressure preference, higher intent to delay, greater ability to meet deadlines, and less dependent personalities than passive procrastinators do, but they both have similar levels of task resentment and fear of failure. Previous studies have shown that that active procrastinators have positive metacognitive beliefs [36], and they delay unscheduled tasks to prioritize urgent tasks [30]. Theoretically, individuals can influence the task input through two forms of avoidance: 1) the individual needlessly postponing completion of the task through procrastination, and 2) suboptimal or unfair workload distribution due to social loafing [42]. Therefore, a dependent personality is less common in active procrastinators. Social loafing in group assignments is closely related to an individual's excessive dependence on others [42]. Specifically, in group assignments, procrastinators may not be well liked [40] or acknowledged by other group members [27]. Active procrastinators, however, demonstrate self-commitment and responsibility [42] that prevent social loafing from increasing. By contrast, characterized by laziness, dependence on others, and time wasting [20], passive procrastinators' indolent traits and lack of time management can easily lead to social loafing. Senecal, Koestner, and Vallerand [29] regarded passive procrastination as a motivational problem. Their indolent traits and lack of time management skills render driving an achievement motivation difficult. Therefore, passive procrastinators exhibit more social loafing than do active procrastinators in group assignments.

This study confirmed that task visibility has a moderating effect on social loafing among active/passive procrastinators. Low task visibility causes higher social loafing among passive procrastinators than does high task visibility. For active procrastinators, high task visibility creates higher social loafing than does low task visibility. Thus, task visibility exerts an opposite effect on the two types of procrastinators in terms of social loafing. Ferrari and Pychyl [42] explained that individuals' expectations of social loafing prompt them to reduce their efforts when performing a task, thereby gaining benefits. For passive procrastinators, their procrastination behaviors reflect their doubts about their own competence and their fear of negative outcomes [11]. Consequently, they often exhibit behavioral inhibition, negative affect, and avoidance motivation [13]. When an individual's contribution is inconspicuous or unrecognizable in a group, he or she cannot claim a connection with the group's achievement. In group task assignments, individuals who work less hard have relatively low task visibility and demonstrate increased social loafing. In this study, the increase in social loafing among active procrastinators was indeed caused by excessively high visibility in individual tasks [32]. Moreover, the present study confirmed that active procrastinators demonstrate higher social loafing under the condition of high task visibility. This result is in accordance with the argument of Albanese and Van Fleet [45], individuals who discover that their invested effort exceeds their responsibility for the group task while having to share the achievement with others perceive a sense of unfairness that leads to an increase in social loafing.

Discussion

In summary, teachers should control the number of group members when assigning group tasks. An excessive number of members may result in social loafing because individuals tend to rely on others. Furthermore, task visibility is related to increases in social loafing. Teachers should assign individual tasks appropriately, make timely announcements regarding each member's level of contribution, and evaluate them accordingly. Excessively high task visibility may lead to social loafing by active procrastinators, whereas passive procrastinators may loaf due to low task visibility. Therefore, the two types should be assigned with different tasks and proportions of responsibility. For example, teachers must fairly divide labor and clearly define each individual's responsibilities. Moreover, teachers should help group members recognize other members' roles and efforts to ensure that active/passive

procrastinators acknowledge their own work and prompt others to invest the same effort. This arrangement will reduce the amount of social loafing caused by cognitive differences regarding task visibility, specifically when active procrastinators find themselves contributing too much to the group task.

Finally, the main contribution of our study is that the results can help educational psychologists and counselors understand the relationships among procrastination motivation, dependent personality, and social loafing that affect active/passive procrastination behaviors. This study examined the differences between active procrastination and traditional procrastination motivations to compare their relationships with dependent personality and social loafing. The findings help clarify how social loafing among active/passive procrastinators may worsen under different conditions such as high/low task visibility. The research results shed light on both the theoretical and practical aspects of active/passive procrastination. In addition to elucidating the relationships among procrastination types, task-based grouping, task visibility, and procrastination behaviors, the results can serve as a reference for teachers and counselors to tailor their approaches for individual students.

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