**RESEARCH ARTICLE**

**Student Decision Quality Modelling: A Lesson from Indonesia**

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**Abstract**

Decision quality can be traced through its process or outcomes. In process approach, the evaluation of decision quality is based on how good the decision making process is managed. In outcomes approach, decision quality is determined by how satisfied is the decision makers about their decision. The latter approach is more familiar in individual decision making. The problem in this approach is decision satisfaction has low efficacy to predict consumption satisfaction, especially if the decision is made under uncertainty, the outcomes occurred in the long run, and individual’s effort is required to generate outcomes. This study is purposed to overcome this problem in university choice context by developing student decision quality model with loyalty intention as sole indicator of student decision quality. Using expectancy value theory, the model reveals that mastery goal is the stronger determinant of student decision quality. Performance avoidance goals contributes negatively to the student decision quality. When used in pairs, mastery goal and decision satisfaction are two strongest determinants of student decision quality. Those results are found with single cross-sectional design. Other researchers are encouraged to validate them in longitudinal research design.

Key words: decision satisfaction, self-efficacy, achievement goals, subjective well-being, achievement motivation, loyalty intention.

**Introduction**

High student loss is a serious problem faced by many colleges or universities in Indonesia, especially by the small and private ones. Reported by Tejo (2019, September 30), there were about 40% students of such colleges or universities leave their study even though the situation doesn’t force them to do it. The question, why they do that unproductive behavior? If they know at first that their choice was bad, why they decided to enroll?

Everybody needs to make good decisions in life. The quest for good decision concept has attracted many researchers since long ago. Their effort gave birth to decision sciences purposed to help people to make good decision (Keren and de Bruin, 2003).

Keren and de Bruin (2003) noted that there are two approaches to judge decision quality, i.e. process and outcomes approaches. In process approach, the measurement of decision quality is based on how the decision making process is managed. This view holds that the right decision has the highest chance to accomplish decision makers’ goals. In other word, good process is expected to generate good outcomes (Keren and de Bruin, 2003; Baron and Hersey, 1988).

This expectation can’t always be fulfilled. There’s no guarantee that good process will generate good outcomes and ill-defined processes will end with bad outcomes. In reality, good process can produces bad outcomes and bad process can end with good outcomes (Keren and de Bruin, 2003). Moreover, there’s still no agreement about quality standards of decision making (Jacoby, Szybillo, and Busato-Schach, 1977; Keren and de Bruin, 2003). The situation become more perplexed because decision making process may contains subconscious steps that can be escaped from decision makers’ or judges’ considerations (Willman-Livarinen, 2017).

In outcomes approach, the quality of a decision is determined by the favorability of its outcomes (Keren and de Bruin, 2003). It can be detected through how satisfied is the decision makers about their decision (Tyburski, 2017). This approach is more popular in individual decision making toward which this study is associated.

Decision making sometimes is the same with a choice of one or multiple goals (Verschure, Pennartz, and Pezzulo, 2014). In this context, most satisfied choice is the most proper according to situation, not the best possible one to generate outcomes of the behavior (Jacoby et al., 1977; Tyburski, 2017; Keren and de Bruin, 2003). The problem is, first, some decisions are made under uncertainty in which the decision makers has no clear understanding of what will happen with decision outcomes (Tyburski, 2017; Chernev, Bockenholt, and Goodman, 2015). With this uncertainty, satisfied decision can leads to bad outcomes (Howard, 1988; Spetzler, 2017; Keren and De Bruine, 2003) and vice versa. Second, decision outcomes often be occurred in the long run (Stevenson, 1993; Meller, 2000) and choice satisfaction gives no clear picture of consumption satisfaction. It can only explains 20.78% (Chae, Black, and Heitmeyer, 2005) or 19.36% (Heitmann, Lehmann, and Hermann, 2007) consumption satisfaction. This is because, as Bubic (2014) said, decision satisfaction is an immediate response to the decision, while consumption satisfaction is determined mostly by commitment to the choice. Third, in many occasions, such as in participative service, decision outcomes are determined mostly by customer participation in the value creation process (Dong, Sivakumar, Evans, & Zons, 2014).

The choice of a university is related to all mentioned considerations. So far, the study about decision quality in choosing college or university is still in its infancy. Therefore, the purpose of this study is to develop and validate that concept that account mentioned considerations. To achieve this objectives, this study is managed as followed. In the next section, the author presents literature review. This section is purposed mainly to develop alternative concept of decision quality. In the third section, the author proposes research method to ensure the robustness of the new determinant in particular and the research model in general. Analyses and results are presented in the fourth section. This section especially consist of the new determinant internal validity and predictive analysis. Its predictive analysis is compared to decision satisfaction in this section. The final section consists of conclusion, limitation of the study and suggestion for practical use and future research.

**Literature Review**

**Decision Quality**

The definition of decision quality and how to create good decision has been the focus of decision specialists since a long time ago (Keren and de Bruin, 2003). Some researchers give their attention on business context, some others pay their attention to individual decision making (Keren and de Bruin, 2003). This study takes the second focus.

The most fundamental question in decision science is whether the decisions should be judged by the process to make them or by their outcome (Keren and de Bruin, 2003). In 1977, Jacoby et al. warned that there’s no single approach to define decision quality in consumer context. Each individual has their own rule and system (Hoyer, 1984; Willman-Iivarinen, 2017). Bettman, Luce, and Payne (1998) said “it depends”. However, in an individual’s daily decisions, in which process-oriented quality is difficult to implement, outcomes approach is more make sense (Keren and de Bruin, 2003).

Howard and Abbas (2016) stated that good decision is the one that produces desired outcomes. Whether the outcomes are desired or not is determined by consumption satisfaction. Therefore, the real indicator of decision quality is consumption satisfaction.

When the outcomes is uncertain, Howard and Abbas (2016) said that good decision is one that has the highest chance of getting the best outcome or the one that has the lowest chance of getting the worst outcome. Those chances are reflected by justifiability of the decision and decision makers’ confidence about their decision (Heitmann et al. 2007). Together with the avoidance of negative emotions, such as regret and social reproach, those two goals influence decision satisfaction (Heitmann et al. 2007).

In individual decision making, many researchers (e.g. (Keren and de Bruin, 2003; Tyburski, 2017; Zhang and Fitsimmons, 1999) believe that the quality of decision is determined by decision makers’ satisfaction about their decision, especially when long-term consequences of the decision are uncertain (Saifort and Booske, 2000). It’s expected that the most satisfied decision has highest chance of getting desired outcomes. The problem is, as stated before, decision satisfaction has low determination on consumption satisfaction (Chae et al., 2005; Heitmann et al., 2007).

 Another approach to decision quality is individual capability to make decision. Fischoﬀ (2008) stated accordingly that eﬀective decision making depends on decision makers’ capability to identify, comprehend, and integrate information. The Decision-Making Competence (DMC) scale and its variants are based on this belief (De Bruine, Parker, Fischoff, 2007). However, the DMC and its variants can only give an indication of the quality of the decision, not the quality of the decision itself.

**Conceptualizing Student Decision Quality**

Expectancy value model has been used extensively as a conceptual framework for explaining motivational processes (Plante, O’Keefe, and Théorét, 2012). In this model, an individual engagement in task is primarily inﬂuenced by internalized perceptions of outcome expectancies and value of speciﬁc tasks or domains (Atkinson 1957; Wiegfield and Eccless, 2000). The expectancy is also correlated with belief that he or she has competence and self-efﬁcacy to perform the task (Wiegﬁeld and Eccles 2000).

Value component refers to the evaluation about how important are the pursued outcomes for an individual (Atkinson 1957; Eccless et al. 1983). It can be viewed as the reasons for engaging in a speciﬁc task (Plante et al., 2012). It consists of four dimensions of value, i.e. attainment value, intrinsic value, utility value, and cost (Eccles et al. 1983; Wiegﬁeld and Eccles 2000). Attainment value is the importance of the outcomes or doing well on a task. Intrinsic value describes the enjoyment an individual gets from the outcomes or performing a task successfully. Utility value describes the congruence of a task with current and future goals, such as career goals and academic aspirations. Finally, cost is defined as negative aspects of engaging in task, such as anxiety and fear and failure and success, including the amount of effort required in that engagement.

In this study, expectancy component is represented by self-efficacy and achievement goals. The value component is represented by psychological well-being, where as loyalty intention represents the task engagement or behavioral component. Thus, as Plante et al., (2012) stated, in this model, the expectancy and value components have complementary effects on behaviors.

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In this model, loyalty intention also functions as the main indicator of student decision quality. High loyalty intention means high student decision quality and *vice versa*.

***Self-Efficacy***

Bandura (1977) defined self-efficacy as person’s belief about his or her ability to perform a task and reach goals. He proposed that self-efficacy determine how people feel, think, motivate themselves and behave. People with strong self-efficacy are more confidence in performing tasks. They also tend to set up higher goals and have higher motivation. They are more receptive toward difficult task because they perceive it as to be mastered rather as threats to be avoided. On another hand, according to Bandura (1977), people with low self-efficacy view difficult tasks as threats. They have low motivation and weak commitment to the goals they want to achieve. When they face difficult task, they tend to focus to their deficiencies and look for the reasons to get out rather than to find the way to perform successfully.

Self-efficacy can expressed as perceived-difficulty in performing tasks (Kraft, Rise, Sutton and Roysamb, 2005), where high perceived difficulty indicates low self-efficacy and low-perceived difficulty reflects high self-efficacy.  Perceived difficulty can be concluded from outcome of performing task.

Self-efficacy can be reflected by perceived-difficulty in performing tasks (Kraft et al., 2005), where high perceived difficulty indicates low self-efficacy and low perceived difficulty reflects high self-efficacy.  Perceived difficulty can be concluded from outcome of performing task.

***Achievement Motivation***

Achievement motivation is rooted on expectancy-value theory (Rotter, 1954; Atkinson, 1957). In this theory, behavior potential (BP) is the function of expectancy (E) and reinforcement value (RV). Expectancy is subjective assessment of probability of certain behavior to produce expected outcomes or reinforcements. Rotter (1954) defined reinforcements as *“identifiable events that have the effect of increasing or decreasing the potentiality of some behavior’s occurring*” (page 6). Reinforcements are potential outcomes that increase the possibility of behavior to be occurred.

As stated by Graham and Weiner (1996), outcome can be produced by skill-related factors or chance-related factors. In skill-related factors, outcomes are determined by one’s own ability. The higher is the ability, the higher is the expectancy. Previous success or failure will influence the ability perception. In chance-related situation, such as in the flip of a coin, expectancy remains the same no matter whether the subject is success or failure in prior experience.

Rotter (1966), extended this concept into wider concept of personality trait called internal versus external locus of control. Internal locus of control is a general belief that one’s fate is influenced mainly by internal factors. Individuals with external locus of control belief that external factors are responsible for their fate.

Achievement motivation concept is relevant in a situation where the expectancy is produced by skill-related factor owned by high ability subjects (Nicholls, 1984) with internal locus of control (Graham & Weiner, 1996). As stated by Nicholls (1984: 328), *“Achievement behavior is defined as behavior directed at developing or demonstrating high rather than low ability”*. In other word, achievement motivation is only relevant to those who high self-efficacy.

In its development, besides demonstrating high capability, achievement motivation also covers the effort to avoid failure. Eliot (1999) offered three goals of achievement behavior called trichotomous goals, they are: (1) *mastery goal* that are focused on attaining task-related skill or competence, (2) *performance-approach goal* focused on attaining normative competence, and (3) *performance avoidance-goal* focused on avoiding normative incompetence. The first two goals should be owned by those who have high self-efficacy and the third goal is belong to those who have low self-efficacy.

In 2001, Eliot and McGregor added fourth dimension called mastery avoidance goal, a goal by which an individual avoids failure in mastering a skill or competence. The new model is now called 2 (focus: mastery and performance) X 2 (valence: approach and avoidance) model. It consists of mastery approach, mastery avoidance, performance approach, and performance avoidance goals. Various concepts of achievement goals have been offered, but the most widely used is this model (Huang and Zhang, 2011). It’s better than trichotomous model (Eliot and Murayama 2008) and has been confirmed as valid in many recent researches (e.g. Phan. 2013; Rosas, 2015; Ratsameemonthon, 2015).

***The Influence of Self-Efficacy on Achievement Goals***

Self-efficacy influences achievement motivation strongly (Bandura, 1977; Domenech-Betoret, Abellan-Rosello, and Gomez-Artiga, 2017). People with strong self-efficacy are more confident in performing tasks, set up higher goals and have higher motivation, more receptive to difficult tasks for they perceive it as challenge to be mastered in rather as threats to be avoided (Bandura, 1977).

People with high self-efficacy show greater motivation (Domenech-Betoret et al., 2017; Schunck, 1991). On the other hand, people with low self-efficacy view difficult tasks as threats. They have low motivation and weak commitment to their goals. When face difficult task, they tend to focus on their deficiencies and look for reasons to get out instead of finding the way to perform successfully (Bandura, 1977; Schunk and Pajares, 2009). More specifically, Hsieh, Sullivan, and Guerra (2007) found that consistent with goal orientation theory, students with high self-efficacy tended not to adopt performance-avoidance goals and students with lower self-efficacy tended to adopt more debilitating goal orientation. These arguments are formalized in following hypothesis:

H1: Self-efficacy influences achievement goals positively. The higher is the self-efficacy, the higher are (a) mastery approach, (b) mastery avoidance, (c) performance approach, and (d) performance avoidance goals.

H2: The influence of self-efficacy on (a) mastery approach and (b) performance approach goals are higher than on (c) mastery avoidance and (d) performance avoidance goals.

***Subjective Well-Being***

Well-being is defined as peoples’ positive evaluations of their lives, includes positive emotion, engagement, satisfaction, and meaning (Seligman, 2002). Well-being is occurred when people see their life is going well. The most fundamental factor of well-being is good living conditions. However, people have different think and feel about many aspects in their lives, such as their relationships quality, positive emotions and resilience, the consciousness of their potential, or the overall satisfaction with their life or general well-being (Diener and Seligman, 2004).

According to Lyubimirski, King, and Diener (2005), although there are differences in how people think and feel, generally the researchers agree that happiness in life is associated with life outcomes that are though as the symbol of success by society. Interestingly, they said, happy people tend to be successful across multiple life domains. The reason behind this, they said, is positive affect that accompany happiness. When all are going well, people can expand their resources and social relationship. They can also take the opportunity to build their skills for future use. Last, they can rest and relax to rebuild their energy after expanding high levels of effort.

The concept of well-being consists of subjective wellbeing and psychological well-being (Chen, Jing, Hayes, and Lee, 2012). Subjective well-being (SWB) is a situation characterized by the absence of negative affect, and the presence of positive affect and satisfaction of life (Diener, Emmons, Larsen, & Griffin, 1985). It is hedonic in nature because the focus is individual’s pleasure and happiness (Ryan & Deci, 2001). Psychological well-being (PWB) is derived from the fulfillment of human potential in their life. It involves individual’s initiatives and actions in facing the challenges in his or her, such as pursuing meaningful goals, growing and developing as a person, and establishing quality ties to others (Ryff & Keyes, 1995). Although the SWB and the PWB defined differently, in fact, both constructs share high similarity (Chen et al., 2012). It’s not surprisingly if both construct used interchangeably (Proctor, 2014).

Lyubimirski et al., (2005) stated that well-being or happiness in life is not something that happens by itself. This perspective is in accordance with the PWB. People can choose activities through which they get positive affect or avoiding stressful situations or emotions, especially as Vallerand (2012) stated, those that are in accordance with passion. Therefore, decision satisfaction and positive goals (justifiability) as well as negative goals (regret and negative affect) conceptualized by Heitmann et al. (2007) as immediate outcomes of decision making that preceded it, will be ended with psychological well-being, as modelled in Figure 1. As specified in this model, based on Lyubimirski et al., (2005) and Vallerand (2012), besides being a consequence, the PWB can also be an antecedent of successful outcomes valued by society, as discussed in following section.

***The Influence of Motivation Goals on Subjective Well-Being***

Several researchers (e.g. Dweck & Elliott, 1983; Nicholls, 1984) suggested that the endorsement of certain goals is likely to be associated with different patterns of coping and emotion. Furthermore, Elliott and Dweck (1988) reported two general types of coping patterns made by young children in achievement situations. Children characterized by challenge avoidance demonstrated low persistence, express negative affect and negative self-cognitions when facing difficulties or obstacles.

Kaplan and Maehr (1999) developed “goal theory” in which achievement goals may play the role in influencing the well-being. In this concept, they specify that task and ego goals trigger different behavioral, coping, and emotive behavior. More specifically, students with ego goals view success in social comparison terms. In relation to self-esteem, this point of view is vulnerable to negative emotions because success is limited commodity. In other word, in this situation, being the looser has higher possibility than being the winner. Only few students can be noted as the winners and most are end up as losers. In contrast, when faced with difficult situations, students who pursued task goals view those situation as challenge, hold more optimistic orientation, maintain positive affect, and implement problem solving strategies. In line with their concept they found that psychological well-being that represented by emotional tone, peer relationships, impulse control, and affect at school was found to be correlated positively with task goals and negatively with ego goals.

Most recent studies confirmed Kaplan and Maehr (1999)’s work. Tuominen-Soini, Salmela-Aro, and Niemivirta (2008) found that goals related to self-improvement and growth (mastery approach) were positively associated with various indices of well-being, whereas goals that reflect avoidance tendencies (mastery avoidance) and concerns with validating or demonstrating one's competence (performance approach and performance avoidance) were linked with different types of adjustment problems. Tian, Yu, and Huebner (2017) found that mastery goal orientations and performance-approach goal orientations both showed a statistically significant and positive correlation with PWB. On the other hand, they found that performance avoidance goal orientations showed a statistically significant and negative correlation with PWB.These results enable the author to propose following hypothesis:

H3: Mastery goals influence psychological well-being positively. The higher (lower) are mastery approach (H3a) and mastery avoidance goals (H3b), the higher (lower) is psychological well-being.

H4: Performance goals influence psychological well-being negatively. The higher (lower) are performance approach (H4a) and performance avoidance goals (H4b), the lower (higher) is psychological well-being.

***Student Loyalty Intention***

Consumer loyalty is a deeply commitment held by the consumer to a product or brand and willingness to hold it although there are reasons to switch (Oliver, 1999). That commitment is indicated by liking to the brand and brand’s advocacy and referral (Aaker, 1991). The relationship between brand and its loyal customers can be seen as love relationship. True loyal customers has only one brand they love (Fournier, 1998).

Ismanova (2019) explains loyalty as dedication and devotion to a cause or object. She said that, “A human is loyal when: he has a cause, he willingly dedicates himself to this cause, he devotes in a sustained manner through acting steadily in respect of this cause” (page 1162). According to Orozco and Arroyo (2017), the dedication and devotion, can be viewed as affective commitment and service co-creation and engagement. Allen and Meyer (1996) saw the commitment as transactional in nature. It means that students will pay their commitment as long as the relationship is beneficial for them.

In decision making behavior, the benefits of the relationship appear in the form of value expectation. It is reflected in decision satisfaction defined by Zhang and Fitsimmons (1999) as how satisfied is a decision maker to the chosen option or to the decision making process that generated by the comparison of features of decision options.

This study follows Heitmann et al. (2007) that treat consumer loyalty as multidimensional constructs. More specifically, in this study, loyalty intention is described as consist of attitudinal loyalty intention and switching likelihood.

***The Influence of Subjective Well-Being on Loyalty Intention***

As mentioned before, Subjective well-being (SWB) is characterized by the absence of negative affect, and the presence of positive affect and satisfaction of life (Diener et al., 1985). Such emotions, according Berg, Soderlund, & Linstrim (2015), will increase likeability and perceived value and decrease perceived risk of the brand. Likeability, relationship with and commitment to the brand are prerequisites of brand loyalty (Aaker, 1991). As a result, consumers will exhibit more intensive loyalty behavior (Jones & Reynold, 2006; Lee, Sirgy, Larsen, & Wright, 2002). Therefore, subjective well-being influences consumer loyalty positively, as formulated in following hypotheses.

H5: Subjective well-being influences attitudinal loyalty positively. The higher (lower) is the subjective well-being, the higher (lower) is the attitudinal loyalty.

H6: Subjective well-being influences switching likelihood negatively. The higher (lower) is the subjective well-being, the lower (higher) is the switching likelihood.

**Research Method**

***Sample and Data Collection***

The study is conducted in Kwik Kian Gie School of Business, located in the capital city of Jakarta, Indonesia, at the final week of Augustus 2019. The choice of this business school is based on two considerations. First, the new students face relatively soft selection process to get into the college. There are many alternatives available for students for the same class educational service. So, the students are expected to think deeply before choose this college. Second, as brand, the name of this college is viewed brings no halo effect on new students perception. So, the choice of this educational institution is mainly based on rational considerations of its educational service attributes, features, and anticipated future outcomes.

The data are collected using questionnaire. At the introduction part of questionnaire sheet the students are informed that their participations are voluntarily in nature. The author also stresses that their participation have no effect on their fate in their new campus.

The questionnaires are distributed online. New students are sent questionnaires’ link and invited them to open the questionnaires by simply clicking the link in their gadget. The respondents can fill the questionnaires any time during the waiting period to start the first semester. To reduce position bias, the order of the questions is randomized. Each respondent is intentionally treated unanimously to make them feel free to fill the questionnaires.

As many 350 respondents, out of 521 new students (response rate is 67.18%), are involved voluntarily in the study. They consist of 198 males (56.6%) and 152 (43.4%) females. The age average is 18.29 years, the median is 18 years, the lowest age is 16 years, and the highest one is 25 years.

The responses are collected automatically by the system. There’s no missing data because the system required the respondents to respond each questionnaire before the push of submission button is authorized.

***Measurements***

Measurement scales are adapted from previous studies, except for switching likelihood that is especially developed in this study (Appendix 1). All of the measurements are multi-items in nature. Their validities and reliabilities have been proven in many researches. Switching likelihood is intentionally treated as single item measurement because of its nature as ‘possibility’. The original questions are translated into Indonesian language make them fit with research context. Responses are recorded using five level Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

**Result**

***Initial Measurement Model***

Confirmatory factor analysis (CFA) with LISREL is conducted test the validity of each measurement. As suggested by Hair et al. (2014), the items of a measurement must meet or exceed loading (FL) of 0.5, the average variance extracted (AVE) of 0.50, and composite reliability (CR) of 0.60. These requirements are failed to be fulfilled by mastery avoidance goal. Therefore this construct is skipped. The remaining measurements are successful to fulfill these requirements as exhibited in Table 1. In addition, those measurements are also reliable as indicated by Cronbach Alpha value that surpass minimum threshold of 0.60.

Above results are derived from majorly indicated as good-fit model, as shown by RMSEA= 0.072, Normed Fit Index (NFI) = 0.97, Non-Normed Fit Index (NNFI) = 0.98, Comparative Fit Index (CFI) = 0.98, Incremental Fit Index (IFI) = 0.98, Relative Fit Index (RFI) = 0.96, Root Mean Square Residual (RMR) = 0.028, standardized RMR=0.047.

Table 1

 Initial Measurement Model

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Measurement | FL | AVE | CR | Alpha |
| Decision Satisfaction  |
| 1. I am satisfied that I am well informed about this university before I chose it (SAT1)
 | 0.74 | 0.55 | 0.73 | 0.89 |
| 1. My decision to choose this university was the best decision possible for me personally (SAT2)
 | 0.74 |
| 1. I am satisfied that my decision to choose this university was consistent with my personal values (SAT3)
 | 0.68 |
| 1. I am satisfied with my decision to choose this university (SAT5)
 | 0.81 |
| Self-Efficacy  |
| 1. I believe I will receive an excellent grade from this university (SE1).
 | 0.73 | 0.53 | 0.90 | 0.90 |
| 1. I expect to successfully carry out (or continue to carry out) my decision to choose this university (SE2)
 | 0.63 |
| 1. I'm confident I can understand the basic concepts taught in this university (SE3).
 | 0.81 |
| 1. I'm confident I can understand the most complex material presented by the instructor in this university (SE4).
 | 0.70 |
| 1. I'm confident that I can do an excellent job on the assignments and tests during my study in this university (SE5).
 | 0.79 |
| 1. I expect to do well in this university (SE6).
 | 0.79 |
| 1. I'm certain I can master the skills being taught in this university (SE7).
 | 0.68 |
| 1. Considering the difficulty of materials offered in this university, the teacher, and my skills, I think I will do well in this class (SE8).
 | 0.66 |
| Subjective Well-Being |
| 1. After choosing this university, I have felt cheerful and in good spirits (SWB1)
 | 0.83 | 0.61 | 0.83 |  |
| 1. After choosing this university, I have felt calm and relaxed (SWB2)
 | 0.71 |
| 1. After choosing this university, I have felt active and vigorous (SWB3)
 | 0.83 |
| 1. After choosing this university, I woke up feeling fresh and rested (SWB4)
 | 0.81 |
| 1. After choosing this university, my daily life has been filled with things that interest me (SWB5)
 | 0.71 |

Table 1

CONTINUED

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Measurement | FL | AVE | CR | Alpha |
| Attitudinal Loyalty Intention  |
| 1. The quality of care of this college is good (LOY2)
 | 0.76 | 0.51 | 0.61 |  |
| 1. I will trust the learning services provided by this university (LOY3)
 | 0.77 |
| 1. I will recommend this university to my friends and relatives (LOY4)
 | 0.61 |
| 1. I have positive attitude towards this university (LOY6)
 | 0.68 |
| Mastery Goal  |
| 1. My aim is to completely master the material presented in this class (MAP1)
 | 0.77 | 0.51 | 0.61 |  |
| 1. I am striving to understand the content of this course as thoroughly as possible (MAP2)
 | 0.82 |
| 1. My goal is to learn as much as possible (MAP3)
 | 0.50 |
| Performance Approach Goal |
| 1. I am striving to do well compared to other students (PAP2)
 | 0.81 | 0.69 | 0.82 |  |
| 1. My aim is to perform relatively well relative to other students (PAP3)
 | 0.82 |
| 1. My goal is to perform better than the other students (PAP3)
 | 0.86 |
| Performance Avoidance Goals |
| 1. My goal is to avoid performing poorly compared to other students (PAV1)
 |  | 0.57 | 0.69 |  |
| 1. I am striving to avoid performing worse than other students (PAV2)
 |  |
| 1. My aim is to avoid doing worse than other student (PAV3)
 |  |
| Switching Likelihood  |
| 1. In the future I may switch to other university (SWITCH)
 | 1.00 | 1.00 | 1.00 |  |

***Mean, Correlation and Standard of Deviation***

As shown in Table 4, by using the average of 4 as minimum threshold for high category in five-level Likert-type scale, only approach motivation falls into this category. The rest, except switching likelihood can be categorized as ‘almost high’ as their averages approach that standard.

 Special attention should be paid on the variable ‘switching likelihood’. Although the response to question “*In future I may switch to other university*” is close to the category of “nor high, nor low” $(\overbar{X}\_{switch}=2.70)$, unfavorable responses to this question is substantial (may be yes, may be no=106 persons or 30.3%, yes=72 persons or 20.6%, and certainly =16 persons or 4.6%). There are around 88 respondents (36.2%) that see switching decision to another university as possible thing in upcoming year. This result gives initial picture about why small and private universities or colleges suffer high loss of students, as describe earlier.

 Using R=0.7 as minimal threshold for high correlation, most correlations are fallen in this category. Most of the correlations are significant at α=0.000. The correlations between self-efficacy with achievement goals and are commonly high, but with mastery approach is the highest one (R=0.96). Moreover, all constructs have negative correlation with switching likelihood.

Table 2. Mean, Correlation, and Standard of Deviation

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | sat | se | loy | switch | swb | map | pap | pav |
| sat | 0.77\*  |  |  |  |  |  |  |  |
| se | 0.90\*  | 0.91\*  |  |  |  |  |  |  |
| switch | -0.14+  | -0.14+  | -0.16+  |  |  |  |  |  |
| swb | 0.81\*  | 0.68\*  | 0.84\*  | -0.16+  |  |  |  |  |
| map | 0.67\*  | 0.96\*  | 0.90\*  | -0.18\* | 0.64\* |  |  |  |
| pap | 0.58\*  | 0.86\*  | 0.78\*  | -0.13+ | 0.58\* | 0.89\* |  |  |
| pav | 0.50\*  | 0.77\*  | 0.69\* | -0.01 | 0.46\*  | 0.75\* | 0.81\* |  |
|  |  |  |  |  |  |  |  |  |
| Mean | 3.76 | 3.67 | 3.85 | 2.71 | 3.60 | 4.02 | 3.99 | 3.91 |
| Standard of deviation | 0.57 | 0.57 | 0.56 | 1.09 | 0.61 | 0.64 | 0.71 | 0.68 |

Note: \*Significant at α=0.000, (1-tailed), +significant at α<0.001(1-tailed), sat=decision satisfaction, se=self-efficacy, loy=attitudinal loyalty, switch=switching likelihood, swb=subjective well-being, map=mastery approach, pap=performance approach, pav=performance avoidance.

***Structural Equation Model***

As expected, the effects of self-efficacy on achievement goals are significant, as can be seen on mastery approach (γ11=1.00, t=15.65, sig.<0.05), on performance approach (γ21=0.89, t=16.36, sig.<0.05), and on performance avoidance (γ31=0.83, t=13.98, sig.<0.05) goals. Therefore, H1a, 1b, and H1c are confirmed. Surprisingly, self-efficacy is able to explain the variance of mastery approach goal perfectly (R2=100%).

 As predicted, the effect of mastery approach goal on subjective well-being, as expected, is positive and significant (β41=1.00, t=5.64, sig.<0.05). The model is succeeded to detect negative influence of performance approach on subjective well-being, but this path is not significant (β42=-0.052, t=-0.40, sig.>0.05). As expected, performance avoidance influences subjective well-being negatively and significant (β43=-0.26, t=-2.30, sig.<0.05). As a whole those three variables are able to explain 57% of subjective well-being variance (R2=0.57).

 Subjective well-being influences attitudinal loyalty intention positively and significantly (β54=0.96, t=13.62, sig.<0.05) with high determination power (R2=0.92). Its influence on switching likelihood is negative and significant (β64=-0.19, t=-3.08, sig.<0.05) but with low determinant coefficient (R2=0.029) (Figure 2).



 All the mentioned effects are occurred in good structural model as shown by RMSEA=0.078, Normed Fit Index (NFI=0.96, Non-Normed Fit Index (NNFI)=0.97, Comparative Fit Index (CFI)=0.97, Incremental Fit Index (IFI)=0.97, Relative Fit Index (RFI) = 0.95, and Root Mean Square Residual (RMR) = 0.044.

***Determining the Determinant of Student Decision Quality***

To determine the determinant of student decision quality, besides decision satisfaction that widely accepted as the determinant of decision quality (Keren & de Bruine, 2003; Tyburski, 2017), the author use structural model depicted in Figure 2. Total effect of a would be determinant on attitudinal loyalty intention should be positive and significant and on switching likelihood should negative and significant. As shown in Table 3, these requirements are subjective well-being, and mastery approach. Self-efficacy is out of consideration because its influence on loyalty intention is negatively mediated by performance avoidance goal. Therefore, together with decision satisfaction know widely as decision quality determinant we now have three determinants of decision quality. The question, which is the best one?

|  |
| --- |
| Table 3. Analysis of Student Decision Quality Determinants |
| Endogenous Variables | Subjective Well-Being | Mastery Approach | Performance Approach | Performance Avoidance |
| Attitudinal loyalty intention | Path coefficient | 0.96  | 0.96  | -0.05  | -0.25 |
| T-value | 13.62\*  | 5.45\*  | -0.40  | -2.28\* |
| Switching likelihood | Path coefficient | -0.19  | -0.19  | 0.01  | 0.05 |
| T-value | -3.08\* | -2.74\* | 0.39  | 1.85 |

Note: \*Significant at α<0.05.

Table 4. Determining the Best Determinant of Student Decision Quality

|  |  |  |
| --- | --- | --- |
| **Determinant** | **Attitudinal Loyalty** | **Switching Likelihood** |
| Unidimensional Determinant |
| Mastery Approach | Path Coefficient | γ11=0.92, t=9.30 | γ21=-0.19, t=-3.06 |
| Determinant Coefficient | 0.84 | 0.031 |
| Goodness-of-Fit | RMSEA=0.078, NFI=0.96, CFI=0.97, GFI=0.95, RMR=0.026 |
| Decision Satisfaction | Path Coefficient | γ11=0.91, t=11.78 | γ21=-0.16, t=-2.65 |
| Determinant Coefficient | 0.82 | 0.023 |
| Goodness-of-Fit | RMSEA=0.079, NFI=0.96, CFI=0.98, GFI=0.94, RMR=0.024 |
| Subjective Well-Being | Path Coefficient | γ11=0.88, t=12.64 | γ21=-0.18, t=-2.98 |
| Determinant Coefficient | 0.78 | 0.028 |
| Goodness-of-Fit | RMSEA=0.097, NFI=0.95, CFI=0.94, GFI=0.91, RMR=0.028 |
| Bi-Dimensional Determinants |
| Mastery Approach | Path Coefficient | γ11=0.50, t=7.26 | γ21=-0.16, t=-1.67 |
| Decision satisfaction | Path Coefficient | γ12=0.57, t=7.83 | γ22=-0.039, t=-0.41 |
|  | Determinant Coefficient | 0.97 | 0.031 |
|  | Goodness-of-Fit | RMSEA=0.083, NFI=0.96, CFI=0.97, GFI=0.92, RMR=0.031 |
| Mastery Approach | Path Coefficient | γ11=0.62, t=8.51 | γ21=-0.12, t=-1.37 |
| Subjective Well-Being | Path Coefficient | γ12=0.54, t=6.89 | γ22=-0.094, t=-1.06 |
|  | Determinant Coefficient | 0.93 | 0.033 |
|  | Goodness-of-Fit | RMSEA=0.096, NFI=0.96, CFI=0.96, GFI=0.89, RMR=0.035 |
| Subjective Well-Being | Path Coefficient | γ11=0.39, t=4.66 | γ21=-0.15, t=-1.18 |
| Decision satisfaction | Path Coefficient | γ12=0.60, t=6.76 | γ22=-0.033, t=-0.33 |
|  | Determinant Coefficient | 0.90 | 0.028 |
|  | Goodness-of-Fit | RMSEA=0.079, NFI=0.96, CFI=0.98, GFI=0.90, RMR=0.025 |

***Strongest Determinant of Student Decision Quality***

To determine which one is the best among the four candidates of determinant of student decision quality mentioned above, the author conducts structural modelling. In this model, each candidate is used simply as exogenous variable and attitudinal loyalty intention and switching likelihood as endogenous variables. The criteria used are determinant coefficient and goodness of fit.

All model are good-fit in all used criteria, except the model with subjective well-being in which RMSEA=0.097 indicates marginal fit for the model. Therefore, the goodness-of-fit of the other models are comparable and in the same level.

As can be seen in Table 4, the capability of four candidates are high in explaining attitudinal loyalty intention. The highest determinant coefficients are owned by mastery approach (R2=0.84) and self-efficacy (R2=0.84). All the candidates are weak to explain switching likelihood. However, the best one is belong to mastery approach (R2=0.031). Therefore, the best determinant is mastery approach.

**Discussion**

This study is succeeded to identify two new determinants of student decision quality in addition to decision satisfaction known as the most prominent determinant of outcomes-based decision quality. Among those three identified determinants, i.e. mastery goal, subjective well-being, and decision satisfaction, this study reveals that mastery approach goal is the strongest determinant of student decision quality. This result confirms the efficacy of mastery approach goal asserted by previous studies.

Students with mastery approach goal belief that success and satisfaction are determined by motivation and effort (Treasure and Robert, 2013; Dweck, 1999). The adaptive nature of mastery approach goals is positively associated with intrinsic motivation (Spinath & Steinmayr, 2012), positive emotions or well-being (Maehr & Zusho, 2009; Huang & Zhang, 2011), help-seeking behavior (Butler & Neuman, 1995), as well as academic achievement (Greene & Miller, 1996). Students with mastery approach goals also demonstrated higher retention and graduation rates.

Mastery approach goal is also associated with task persistence within a task (Ames & Archer, 1988; Cain & Dweck, 1995). The association with persistence may be related to attitudes about effort that accompany motivational goals. People with mastery goals view failure as effect of insufficient effort or because of inappropriate strategies (Dweck, 1999; Dweck & Leggett, 1988). As a result, mastery goals were positively correlated with course grades in introductory psychology and educational psychology courses (Young, 2007) and college chemistry course (Grant & Dweck, 2003) and history (Gehlbach, 2006). The most important thing, mastery goal has higher contribution on course satisfaction (Gehlbach, 2006). This results assert that mastery goal is the best student decision quality.

All determinants of student decision quality have low efficacy in explaining switching likelihood. This result simply confirms the efficacy of Bansal, Taylor, and James (2005)’s push, pull, and mooring factors (PPM) theory. This theory states that switching behavior in service is influenced by push, pull and mooring factors. Push factors are negative factors in existing service provider that push customers away, such as low satisfaction, failure in service quality, low value, low trust, and high price, price unfairness, and so on. Pull factors are positive factors at other service provider that pull people in, such as high service quality, price fairness, good personal service, incentive, and so on. Mooring effect acts as moderating variables that can encourage the migration to a new service provider or deter the potential switchers from leaving their existing service provider, such as attitude toward switching, switching cost, switching obstacles and so on. In sum, switching behavior can be judge more accurately when customers have experience the service. So, it’s understandable if decision maturity and decision satisfaction have low efficacy to explain the switching likelihood.

This study can’t be escaped from the difficulty to determine achievement goals orientation of each respondents, as also experienced by many previous studies, such as mentioned above. To overcome this problem in future research, other researchers are suggested to use method that can separates respondent as approach or avoidance goals driven. Because, as Hoyert and Hendrickson (2012) found, goal orientation can be used to improve college retention and graduation rates.

This research still relies on single cross-sectional design that make it impossible to check the influence of SDM on the real outcomes. Longitudinal research design is required for this purpose. With this approach, the influences of SDM on real achievement, attitudinal loyalty, and switching behavior can be detected.

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**Conflict of Interest**

There is no conflict of interest about the results of this study.

**Declaration of Ownership**

This paper is my original work.

**Ethical Clearance**

The instrument and data collection method have approved by committee formed by Institute of Research and Community Service as they have met ethical conducts.

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Appendix 1

MEASUREMENTS

|  |  |
| --- | --- |
| *Latent Variables with Indicators*  | *Sources* |
| *Decision Satisfaction* |
| SAT1 | I am satisfied that I am well informed about this university before I chose it | Adapted fromHolmes-Rovner et al. (1996) |
| SAT2 | My decision to choose this university was the best decision possible for me personally |
| SAT3 | I am satisfied that my decision to choose this university was consistent with my personal values |
| SAT5 | I am satisfied with my decision to choose this university |
| *Self-Efficacy* |
| SE1 | I believe I will receive an excellent grade from this university | Adapted from Pintrich et al., 1991 |
| SE2/SAT4 | I expect to successfully carry out (or continue to carry out) my decision to choose this university |
| SE3 | I'm confident I can understand the basic concepts taught in this university |
| SE4 | I'm confident I can understand the most complex material presented by the instructor in this university |
| SE5 | I'm confident that I can do an excellent job on the assignments and tests during my study in this university |
| SE6 | I expect to do well in this university |
| SE7 | I'm certain I can master the skills being taught in this university |
| SE8 | Considering the difficulty of materials offered in this university, the teacher, and my skills, I think I will do well in this class. |
| *Loyalty Intention* |
| LOY1 | I will have special attachment or emotional feelings towards this institution | Adapted from Kumari and Patyal (2015) |
| LOY2 | The quality of care of this university is good |
| LOY3 | I will trust the learning services provided by this university |
| LOY4 | You will recommend this university to my friends and relatives |
| LOY5 | You have positive attitude towards this university |
| *Switching Likelihood* |
| SWITCH | In the future I may switch to other university | *Developed in this study* |
| *Achievement Goals* |
| Mastery Approach |
| MAP1 | My aim is to completely master the material presented in this class  | Eliot and Murayama (2008) |
| MAP2 | I am striving to understand the content of this course as thoroughly as possible |
| MAP3 | My goal is to learn as much as possible |

Appendix 1

CONTINUED

|  |  |
| --- | --- |
| *Latent Variables with Indicators*  | *Sources* |
| Mastery Avoidance | Eliot and Murayama (2008) |
| MAV1 | My aim is to avoid learning less than I possibly could |
| MAV2 | My goal is to avoid learning less than it is possible to learn |
| MAV3 | I am striving to avoid an incomplete understanding of the course material |
| Performance Approach |
| PAP1 | I am striving to do well compared to other students |
| PAP2 | My aim is to perform relatively well relative to other students |
| PAP3 | My goal is to perform better than the other students |
| Performance Avoidance |
| PAV1 | My goal is to avoid performing poorly compared to other students |
| PAV2 | I am striving to avoid performing worse than other students |
| PAV3 | My aim is to avoid doing worse than other student |
| *Subjective Well-Being* |
| SWB1 | After choosing this university, I have felt cheerful and in good spirits | Adapted from The 5-item World Health Organization Well-Being Index (WHO-5) Version 1988 |
| SWB2 | After choosing this university, I have felt calm and relaxed |
| SWB3 | After choosing this university, I have felt active and vigorous |
| SWB4 | After choosing this university, I woke up feeling fresh and rested |
| SWB5 | After choosing this university, my daily life has been filled with things that interest me |