MOTIVATIONAL AND DEVELOPMENTAL STAGES IN MUSIC STUDY

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Overview

This paper introduces the Facilitative Factors Model as a new, developmental model of motivation. The model emerged from investigation of the formative role and residual value of childhood piano lessons from the perspective of former students in adulthood (Faber, 2003). The model appears to have motivational implications beyond the field of piano education.

The Facilitative Factors Model comprises two consecutive stages of motivation. Each stage contains three co-varying factors that facilitate engagement in music study. In Stage I, we found competence, reinforcement, and self-esteem to be facilitative factors that interact synergistically to increase *engagement* in music study. We found a second set of facilitative factors—competence, passion, and identity—that similarly interact to generate a second stage of motivation and *commitment*. Stage II is characterized by the emergence and subsequent strengthening of a student's personal identity as a musician. We hypothesize that it is the interplay between these two stages, these two sets of facilitative factors, that begets the much-desired *intrinsic* motivation—or when lacking, de-motivation.

We found that engagement of these dynamics in childhood piano study played a valued developmental role for many of the music students (from their perspectives as adults). The experience of personal competence, engagement, and intrinsic motivation that manifest at both stages appear**s** to provide a foundation from which life skills can develop. We emphasize the facilitative factors *self-esteem* at Stage I and *identity* at Stage II to identify the dominant construct at each stage and to relate the stages to corresponding age-related, developmental needs addressed in the research literature.

Our study fills two voids in the motivational research literature: 1) The Facilitative Factors Model explicates transitions between Bloom's (1985) stages of talent development; 2) The Stage I construct of self-esteem and the Stage II construct of identity combine to form a unifying model that answers calls for convergence among career-development theories and suggests convergence between stages of personal developmental, stages of talent development, and stages of career development.

Background

I conducted the dissertation study *Motivational and Developmental Stages in Piano Study* (Faber, 2003), from which this paper is drawn, at Vanderbilt University. As a piano teacher and author of piano-teaching methodology, I wished to determine what could be learned from adult perspectives on the outcomes and value of private piano instruction in youth. The study began with naturalistic inquiry into the perspectives of 30 adults on their childhood piano lessons.

Biographies were constructed from interviews of adults who had a minimum of six years of piano study in their youth. Analysis of the adult remembrances of the events of their childhood music study led to the formulation of a two-stage model of motivation, called the Facilitative Factors Model.

In many ways, this study parallels the 1985 study by Benjamin Bloom, published as "Developing Talent in Young People." Bloom and his associates looked at outstanding professionals in various talent fields, including piano. We looked at adults who studied piano extensively in their youth but did not pursue piano-performance careers. The two studies are nevertheless quite similar. In both studies, data derives from adult interviews, and both rely on retrospective reporting of early experiences. Bloom derived a theory in which he identifies three stages of talent development: 1) An exploratory phase, with a focus on fun and learning through exploration; 2) a "get-down-to-business" phase, characterized by focus, hard work, and a professional teacher-student relationship; and 3) the master-teacher/student-disciple mentoring relationship of conservatory or professional study. Our study identifies the transitions between the phases that Bloom derived, serving to illuminate the tensions and values associated with these phases for the more typical student.

Bloom describes no transition between his diametric stages. One can imagine an abrupt shift between playing enjoyable music for fun and playing a more alien and difficult repertoire with a focus on skill development. How do children make this transition? Does it coincide with children's transition into adolescence? Is this an additional source of stress for students at a time of general uncertainty? How do people view these transitions from the distance of adulthood? We know that most people abandon music lessons after a few years (Sloboda, 1996); does this abandonment coincide or closely follow students' transitions between stages? And, most importantly, what are the factors that determine student motivation to affect these transitions? While all of these questions were addressed in the study, for this paper, we focus on the last question.

We looked first toward Robert Glaser's work on transitions in self-monitoring during long-term skill acquisition to offer clues to the above. Glaser (1996) compares and contrasts the monitoring role of the teacher with independent self-monitoring by the student. Glaser describes three phases of monitoring and support in the development of expertise: 1) external support; 2) transition; and 3) self-regulation. These phases present a shift over time from initially high levels of external support and monitoring from teachers and parents to lower levels of external support and higher levels of self-monitoring. Students in the third phase use competitions, public performances, and solicited feedback from mentors to supplement their self-monitoring of their level of expertise.

To initiate a stage theory for music study (more specifically, piano study), we laid Bloom's three stages of talent development over Glaser's three stages of expertise development to create three stages of piano study with the following characteristics: Stage 1) Teachers engage children's interest and enjoyment through selecting music with which the children connect, providing extensive learning and emotional support for children's knowledge and skill development, and being the sole, or at least primary, source of feedback; Stage 2) Teachers withdraw some of their emotional and learning support, introduce a new music literature with which children or adolescents have less connection, and guide adolescents to be more self-monitoring; and Stage 3)

Teachers account for only one source of feedback, other sources being outside listeners and the student's continual self-monitoring during deliberate practice.

Methods

The study unfolded in two phases: 1) an exploratory phase in which we identified variables and developed grounded theory, and 2) a confirmatory phase that tested and refined the theory developed in Phases 1 with a larger sample of participants. Raw data consisted of interviews of 30 adults who studied piano for six or more years during youth.

The interviews reconstructed each participant's course of piano study and generated rich description on the long-term impact of piano lessons. Through the interviews, we sought a) to determine adult perspectives on their childhood piano lessons; b) to construct participant biographies relative to their piano lessons; c) to determine the role of piano in the adult's life; d) to uncover new, relevant information not anticipated at the outset of the study; and e) to help formulate questions and guide the ongoing interviews and observations.

Our protocol included writing reflective, theoretical, and methodological notes on our field notes and transcripts and in our diaries. Reviewing our notes and reflections enabled us to improve the protocol for subsequent interviews.

Rationale for Methodology

The agents that act upon a child's development are many and varied, and music may be but one factor of many in shaping a person's life. However, since little research exists regarding the long-term effects of piano lessons on either youth or adults, few variables have been identified by previous studies. Qualitative research methods are particularly useful in identifying variables (Chi, 1997; Miles & Huberman, 1994), generating working hypotheses (Erlandson, Harris, Skipper, & Allen, 1993), and deriving grounded theory (Strauss & Corbin, 1990).

The emergent nature of naturalistic inquiry enabled us to examine our subject without presetting all of the parameters of the study. The naturalistic paradigm prescribes an evolving research design based on analysis of what is found during the inquiry process (Lincoln & Guba, 1985). Thus, in this study, we did not attempt to prove a priori hypotheses, but rather to develop hypotheses based on our analysis of field data. We developed grounded theory through the ongoing analysis of data and the constant comparison of new data with hypotheses generated from previous data (Strauss & Corbin, 1990).

Data Analysis

Analysis of the data from interviews and observations was a generative process, beginning with the first interview. Lincoln and Guba (1985) point out that "data analysis must begin with the very first data collection in order to facilitate the emergent design, grounding of theory, and emergent structure of later data collection phases" (p. 242).

Following a taxonomic analysis, wherein we grouped our participants' data by musical career trajectory (degree of aspiration toward a performance career), we proceeded with "open coding"

(Strauss & Corbin, 1990) in which we scoured the data for general categories. We looked for key words and frequency of words to determine potential variables. Whereas initial theoretical notes were made by individual researchers, most of the subsequent analysis was done jointly. Collaboration in the open coding was deemed beneficial in that it allowed ~~an~~ interplay between "insider" and "outsider" viewpoints and strategies (Spradley, 1979). As the categories gained body and meaning, attention was given to finding potential negative cases.

We followed with axial coding to look for relationships between categories (Strauss & Corbin, 1990). Arriving at such relationships required a persistent shuffle between categories and concepts, much diagramming and sketching, and frequent shifts between hypotheses and data. Care was taken that any tentative theories were grounded in the data. This required our going back repeatedly to data points to check for validation of any hypothesis.

Tentative theory derived from Phase 1 was tested against the constructed biographies of Phase 2. Each case was compared individually against the theory, with an eye out for negative cases. The consistency of the theory was thus tested against the extended set of cases. The cases of Phase 2 were then analyzed collectively against each facet of the theory. Finally, we refined the model through analysis of slight dissonances between our theory and the case histories.

For details on trustworthiness of the study, participant selection, field-entry procedures and protocol, see Faber, 2003.

Facilitative Factors Model

From our analysis of the data, we derived the Facilitative Factors Model. The model describes two consecutive stages of motivation. Each stage comprises three co-varying factors that facilitate engagement in music study.

Facilitative Stage I

Having once begun piano lessons, why do some students quit and others persist in their piano studies? Consider the two cases of Jeanne and Juan. Why is Jeanne committed to continued piano study, while Juan is eager to quit?

In the case of Jeanne, we find competence at the piano as demonstrated by her playing proficiency. The comments of her teacher acknowledge this competence and offer reinforcement for her involvement, “You played well. You always play well.” We see Jeanne’s self-esteem manifest in her pride: she beams when she reviews her Achievement Testing grades. Jeanne is engaged by the activity of piano study. We observe that her sense of self is rewarded by the process of practice-results-reinforcement and the feelings associated with skill and accomplishment.

Juan does not play well; he knows that he is not exhibiting competence in this skill area. Juan’s His teacher is critical of his performance, his lack of practice, and his lack of progress. With this lack of competence and lack of reinforcement, piano lessons do not contribute to Juan’s feelings

of self-esteem. Neither does Juan foresee a positive change in self-image from continued involvement with the piano. He consequently plots to quit lessons.

Notice that, in both examples, three factors appear to be mutually influential. Competence, reinforcement, and self-esteem appear to co-vary in a transactional relationship. In other words, as any one factor improves, it tends to positively influence the other factors. Inversely, if one of the factors declines, it causes a decline in the other two factors.

Through the data analysis described earlier, we identified competence, reinforcement, and self-esteem as key factors that facilitate students' engagement with and continuation of piano study. Consistent among all of our cases, these factors seem to work together to provide the initial boost toward intrinsic motivation. In many cases, the factors apparently continue to operate, generating sustaining levels of motivation. The relationship of the factors is represented in Figure 1.

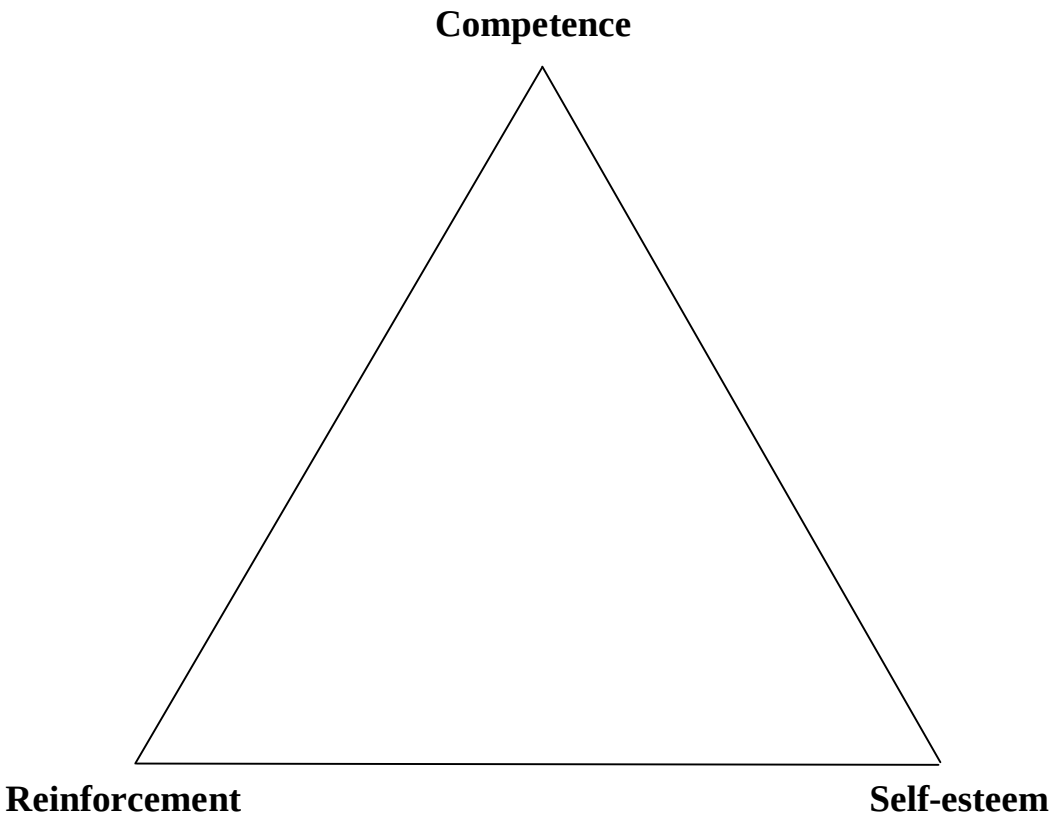

Figure 1 Facilitative Stage I

The equilateral triangle depicts the interrelatedness of the factors. Each factor depends on and acts upon the other two. Thus, one can imagine a larger triangle to represent higher values for each factor and a smaller triangle to depict lower values for each factor. (Jeanne experienced

high degrees of competence, reinforcement, and self esteem; whereas Juan experienced low values of each.)

The interview data reveal a dynamic quality of the model.

> *Robert learns a difficult, showy piece (competence) that receives praise (reinforcement) from his teacher and peers. He glows with self-esteem. With self-perception of competence, reinforcement and a boost to self-esteem, Robert increases his practice and tackles another difficult piece. A motivational spiral ensues where progress begets more progress.*

The model also explains a de-motivational spiral.

> *Daniel slackens in his weekly practice. After a couple of "bad" lessons, he convinces his mother to cancel the week's lesson because he is embarrassed about his lack of progress. When lessons resume, the teacher reveals frustration with a sigh of exasperation and assigns Daniel easier pieces for review. Daniel is painfully aware of his lack of competence and the teacher's response only reinforces that such perception. With his self-esteem relative to the piano plummeting, Daniel avoids daily practice and approaches his weekly lessons with dread. Declining perception of personal competence, absence of reinforcement, and declining self-esteem work together to cause Daniel to withdraw emotionally and eventually physically from piano study.*

"Competence" refers to experienced and/or perceived skill. "Reinforcement" may come from the teacher (e.g., praise), social sources (e.g., peers, church, community) or from generational sources (e.g., parents, siblings, grandparents, extended family, etc.).

We attach broad meaning to "self-esteem" for purposes of this model. The term itself is unwieldy—"an impure phenomenon…because it is always connected to many other self-related phenomena and processes" (Mruk, 1999, p.34). We use it to include both the traditional concept of global self-esteem—the generalized self-perception of one's worth (Trusty and Oliva, 1994)—and the concept of contextualized self-esteem—self-esteem in reference to a specific ability. We might argue that contextualized self-esteem reflects self-concept of ability as modified by the importance (or lack thereof) attributed to such ability.

Thus, the assessment of personal self-worth would include both assessment of efficacy in skill areas and the cognitive processing that assigns relative worth to the skill areas (Bandura, 1977). This discrimination is valuable, because it confirms a cognitive component to what otherwise looks like a mechanistic model. The two-factor relationship of competence-reinforcement is mediated by the cognitive processing of implications for self-esteem. (See Faber 2003 for more details on cognitive factors uncovered in the studied.)

Mutual Interaction of Factors

The three Stage I factors competence, reinforcement, and self-esteem mutually interact. Thus, each of these factors has the potential to spiral the student to higher levels of motivation.

Competence as a Causal Factor. Stage I is consistent with and elucidates the *self-enhancement hypothesis* (Solstroem, 1997) that underlies Deci & Ryan's theories of motivation (e.g., Deci & Ryan, 1991). The self-enhancement hypothesis states that people are motivated to action in areas of their lives in which they are likely to experience positive feelings of competence and esteem. Our model predicts that strong competence and strong self-esteem in a skill area will attract external reinforcement and will stimulate intrinsic reinforcement. Inversely, the self-enhancement hypothesis predicts a reduction of motivation to engage in areas of low perceived competence and/or low domain-related self-esteem. Similarly, the Facilitative Factors Stage-I predicts an absence of reinforcement and motivation when competence is perceived to be low.

Self-Esteem as a Causal Factor. General self-esteem theory is based on the observation that people strive to think of themselves positively; therefore, they seek and use perceived successes, skills, or positive attributes as a basis for establishing, enhancing, or maintaining self-esteem (Solstroem, 1997). This observation supports the link from competence to self-esteem in the model. Because of the above tendency and the cultural importance of success, individuals will seek out areas of perceived success to bolster personal self-esteem (Solstroem, 1997). This illustrates the motivational power implicit in the model. Also, consistent with the premise of the self-enhancement hypothesis, it helps explain the link from self-esteem to increased competence. The gravitation toward and consequent engagement in a self-esteem inducing activity tend to build further competence through exposure and practice.

Reinforcement as a Causal Factor. The factor reinforcement has its roots in behaviorism, and hence the work of B. F. Skinner. Skinner and his colleagues, particularly Michael and Meyerson (Pressley, 1995), demonstrate that a behavior is more likely to recur if it is followed by a reinforcer. A reinforcer is any valued response that instills a positive association between the reward and the behavior. The term positive reinforcement aptly applies. Thus, reinforcement precipitates further engagement and consequent opportunities for increasing competence.

The simple mechanistic relationship between a reinforcer and behavior has been modified by theories of cognitive psychology (Pressley, 1995). Bandura (1977) and others postulate that reinforcement and behavior are mediated by cognitive processes. In other words, assessments of value and meaning can determine whether or not a reinforcement elicits a behavior. Our model similarly augments the mechanistic model of behavioral reinforcement with its addition of the third factor, self-esteem. This factor depicts the assessment of a reinforcer's value in relation to one's worth or potential worth, thus reflecting a key cognitive component that mediates behavior.

We note that reinforcement from the teacher is part and parcel of the music-instruction process. It takes the forms of verbal, non-verbal, and musical cues that include specific feedback (Hendel, 1995). Such reinforcement occurs repeatedly within the music lesson as part of a three-step instructional sequence identified by Becker, Englemann, and Thomas (1971): 1) teacher presentation of task, 2) student response, and 3) reinforcement of student response. This sequence has been found to be possibly the best instructional pattern for music teaching (Hendel, 1995). The operation of the model, then, hypothetically occurs at the micro level within the lesson, and at the macro level through more significantly reinforcing experiences.

Facilitative Stage II

We found that passion (for music), identity (as a musician), and competence (at higher levels of performance) similarly interact to form a second stage of facilitating factors. This second-stage builds on the motivation and achievement of Stage I and serves to catapult the student to a higher plateau of commitment. Stage II also can be represented by an equilateral triangle (Figure 2)

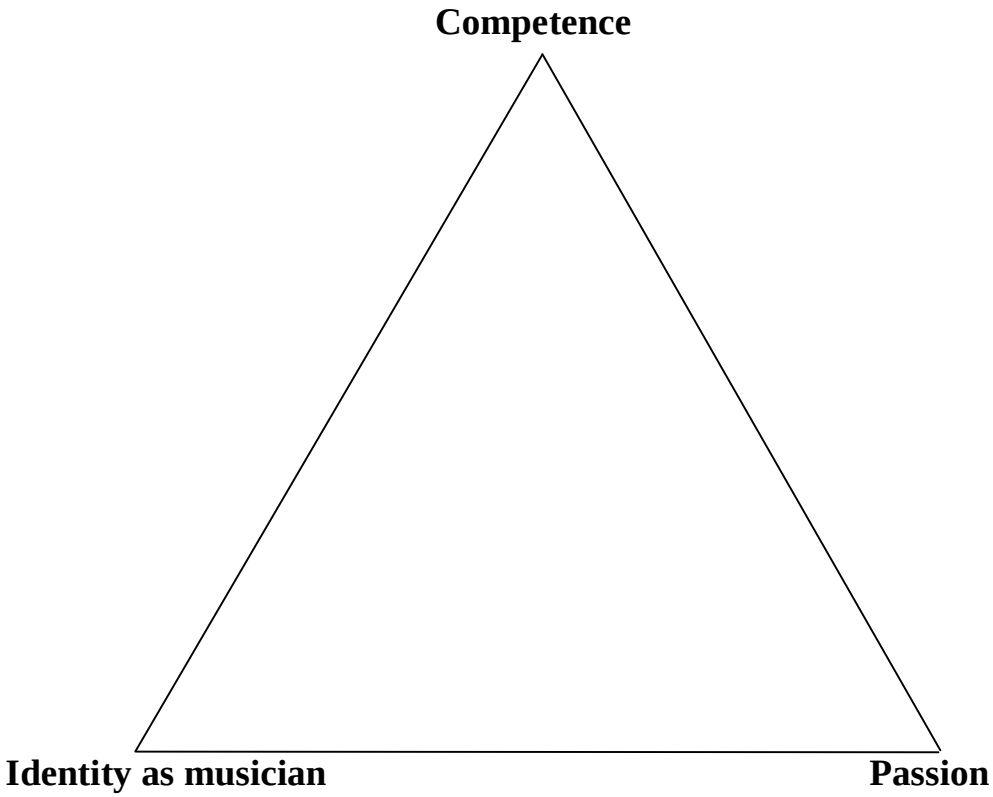

Figure **2** Facilitative Stage II

When we combine our Stage I and Stage II triangles to illustrate the complete Facilitative Factors Model (Figure 3), we see that both stages depend on the perception of competence. The first stage requires an *external* perception of competence that is implemented through *reinforcement*, whereas the second stage emerges when the perception of competence becomes *internalized*. We might consider the introspective processing of identity as a developmental step that builds on the introspective first-stage factor *self esteem*.

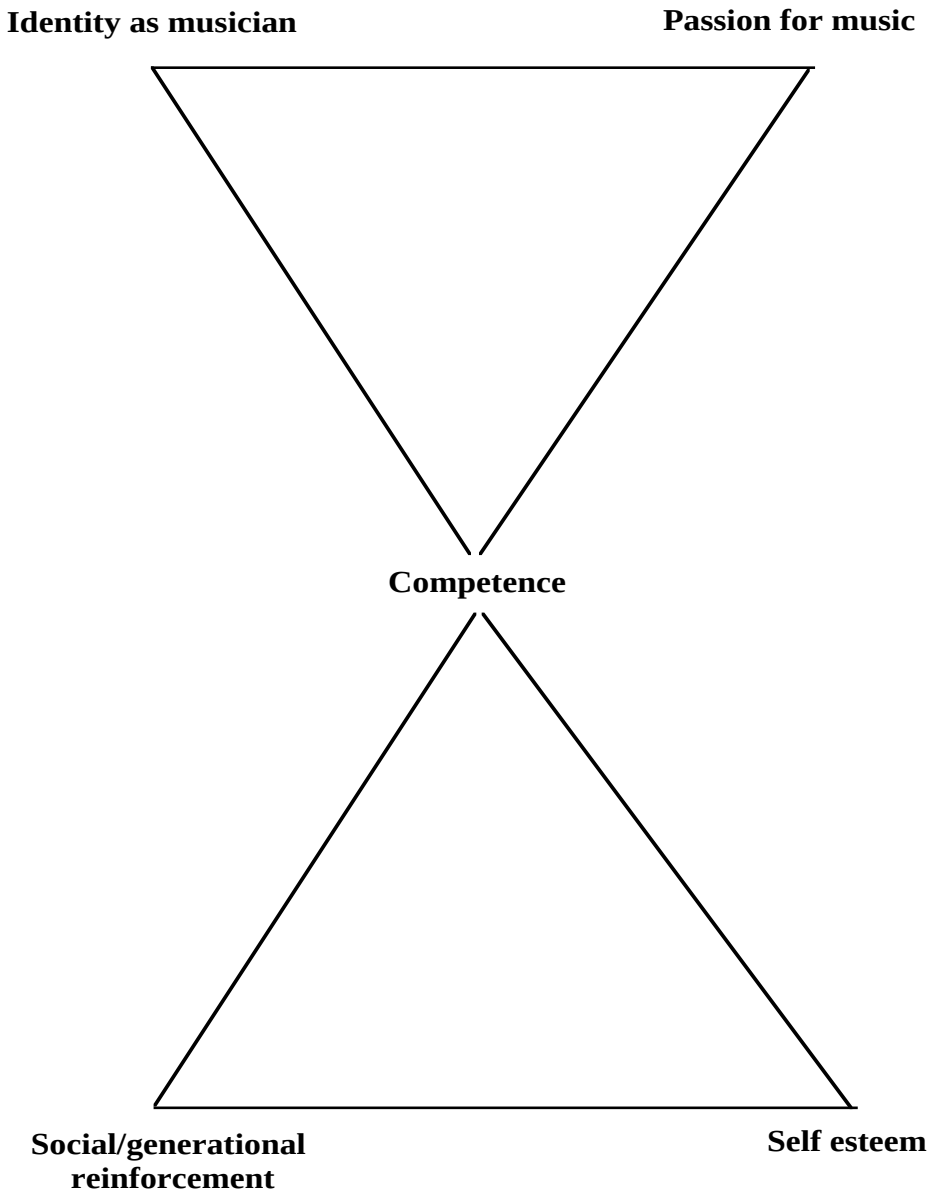

Figure 3 Facilitative Stages I and II in Combination

Though the second stage dynamic implies internal processing for its engagement, the factors are externally manifest. The more highly processed perception of competence is externally manifest in the focused energy of *passion* and in the visible emergence of *identity*. The model suggests two transformations that lead to a motivated, productive, and competent individual: 1) The externally manifest *reinforcement* of the first stage becomes externally manifest in the second stage as the factor *passion*. 2) The internally processed component of *self-esteem* of the first stage transforms at the second stage to an externally manifest *identity*. These transformations occur by reason of increasing competence, the pivotal factor in our model. The Facilitative Factors Model (Figure 3) clearly suggests dynamic processes at work.

Discussion

The highest level of motivation is intrinsic motivation (Deci & Ryan, 1991). We first discuss how the Facilitative Factors Model supports existing theory of student attainment of intrinsic motivation.

Transition to Intrinsic Motivation

Deci and Ryan posit a continuum of extrinsic to intrinsic motivation known as *self-determination theory* (Whitehead and Corbin, 1997). At the lower end of the continuum is externally imposed motivation, with reward or coercion at the bottom**.** At the upper end of the continuum is autonomous motivation, with "true intrinsic motivation" at the top (see Figure 4).

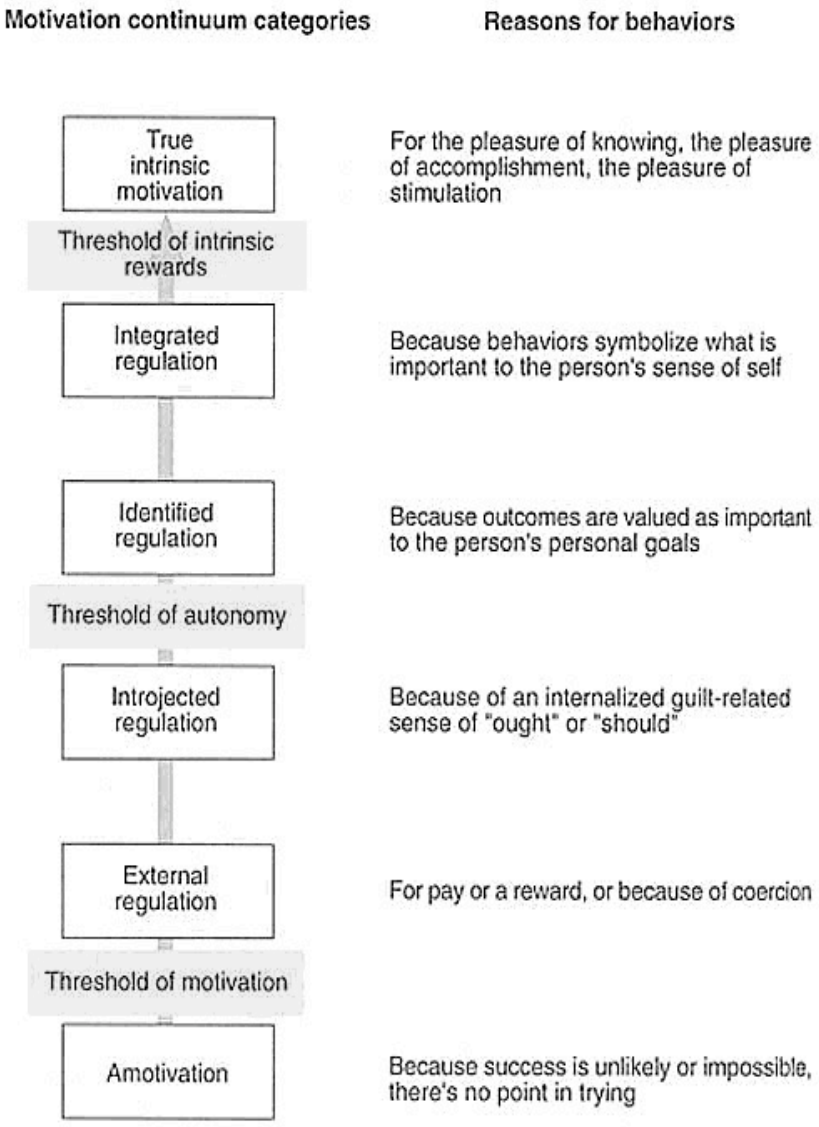

Figure 4 Continuum of motivation categories[1]

[1]The continuum is based on the self-determination theory of Deci and Ryan. The thresholds have been added by Whitehead and Corbin, (1997), p. 178.

In between, the continuum passes from extrinsic motivation based on reward or guilt, across the threshold of autonomous motivation (Whitehead & Corbin, 1997) to motivation based on goals and values deemed important to self, and then to motivation toward behaviors that symbolize one's identity. Though not the apex of intrinsic motivation, the latter two are intrinsic motivations. Whitehead & Corbin (1997) describe these levels as "motivations that enable individuals to feel independent, confident, and 'effective' in life" (p.179). Note the parallels between these two levels of intrinsic motivation and the passion and identity factors of Stage 2 of the Facilitative Factors Model. With the engagement of the 2nd stage, an individual is motivated by goals and values that are passionately embraced and by the behaviors that are consistent with the identity adopted to represent self.

Self-determination theory suggests that movement from Stage I to Stage II of the Facilitative Factors Model constitutes a progression toward increased intrinsic motivation. Conversely, Stages I and II of the Facilitative Factors Model describe the dynamics of the transition to intrinsic motivation. The Deci and Ryan continuum itself does not imply sequential stages of motivation; it simply offers a serial representation of imposed versus autonomous motivation. However, when juxtaposed with the two-stage model of facilitative factors, we see a temporal relationship, specifically, a stage-like transition into autonomous, intrinsic motivation. Indeed, the Facilitative Factors Model explicates the dynamics of such a transition. We understand how a child may begin a skill-building activity such as piano lessons through parental initiative, and then develop autonomous motivation through the action of the dynamic stages. Thus, motivation that may begin at the lower rungs of the self-determination continuum can transform to the upper rungs of intrinsic motivation, as described by our theory.

As shown in the depiction of the self-determination continuum (Figure 4), the threshold of autonomous motivation occurs with motivation toward goals and values deemed important to self. This is topped in the continuum by motivation toward behaviors that symbolize one's identity, implying a stronger degree of autonomy and therefore a deeper degree of intrinsic motivation. Our theory of the facilitative factors illustrates these continuum points by placing them into a developmental sequence. Motivation towards activity that brings increased self-esteem provides the 1st stage foundation. Issues of identity provide motivation at the 2nd stage. Consistent with the continuum, the 2nd stage represents a higher degree of autonomy.

Developmental Needs

In considering motivation as the individual's response to a current developmental need**s**, we look briefly at our theory relative to the classic studies in this regard: Maslow's Heirarchy of Motivational Needs (1954) and, more significantly, Erikson's Stages of Psychosocial Development (1959).

Maslow's Heirarchy of Motivational Needs. Maslow (1954) hypothesizes that as lower-level motivational needs are fulfilled, the higher motivations are activated. The sequence of needs and implicit order of motivation are: physiological, safety, affiliation, esteem, actualization. Indeed, there is an apparent relation between the Facilitative Factors Model and Maslow's motivation theory. The 1st stage factor social *reinforcement* finds some parallel in Maslow's social

affiliation, in that reinforcement is a statement of approval by others. The factor *self-esteem* matches with Maslow's esteem need. The increase of these factors through operation of the 1st stage dynamic draws the individual toward increased involvement in a skill–based activity, because such engagement increasingly meets the fundamental needs of affiliation and esteem. As the 1st stage dynamic drives up competence and motivation, the second stage factors take hold. The 2nd stage dynamic amplifies personal competence to new heights, implying Maslow's concept of self-actualization.

Thus, the two stages of our model parallel two groupings of Maslow's stages: motivation to meet the lower-level needs, which include affiliation and esteem, and motivation to meet the higher-order need of self-actualization. This dichotomous grouping of Maslow's hierarchy of needs is consistent with groupings suggested by Herzberg (see Hershey and Blanchard, 1969) and McClelland, Atkinson, et al. (1953). This supports the dichotomous nature of our two-stage model and suggests a special independence of the first stage. Whereas Maslow's lower-level needs of physiological needs, safety, affiliation, and esteem must be filled for actualization to be an effective motivator, and whereas, the first stage factors provide the dynamic for meeting these needs[2]; we deduce that the successful engagement of the 1st stage dynamic has special value by enabling activation of the higher-order motivation towards actualization. Thus, even if the 2nd stage is not engaged in the same context, the value of the 1st stage is still significant, because it serves to meet lower-level needs, consequently opening the possibility for actualization. Considering the implicit value of motivation towards actualization, the successful engagement of the 2nd stage factors is of obvious value.

Erikson's Stages of Psychosocial Development. The uplifting spiral of competence, reinforcement, and self-esteem (1st stage dynamic) motivates the student towards further practice and learning. Such industrious activity is just what is prescribed for the pre-adolescent in Erik Erikson's theory of development. Erikson calls this particular stage "industry vs. inferiority" (Erikson, 1959). The pre-adolescent must take hold of life, either engaging with a personal sense of ability or risk feelings of personal inadequacy. Our model suggests that a bridge to engagement is the experience of competence within a particular domain. The self-esteem generated by such industrious engagement modulates feelings of inferiority, thus fulfilling this stage of personal/social development. The motivational process for industrious engagement is depicted in Stage I of our model by the dynamic relationships among the facilitative factors: competence, reinforcement and self-esteem.

Erikson places the above crisis stage at ages six to puberty. This is typically the age when piano lessons begin. Thus, we find that the early years of piano study, the opportunity for engagement of 1st stage facilitative factors during piano study and the crisis of industry versus inferiority all converge during the same age period. We suggest that piano study can assist the child's progress through this stage of development by offering an opportunity for successful engagement of the 1st stage dynamic. The resultant feelings of mastery and competence preclude feelings of inadequacy and inferiority, and thus manifest successful passage through this critical developmental stage.

[2] Specifically, affiliation and esteem. We assume that the basic needs of safety and shelter are already met.

Moving up in age, the task of the adolescent is to find or integrate a "complete identity" (Miller, 1983, p.165). Erikson calls this subsequent crisis stage "identity and repudiation versus identity diffusion" (1959). We find this stage to parallel the 2nd stage dynamic with its factors of identity, passion, and competence.

Convergence with Stages of Talent Development

The duality of our model suggests a stage theory of skill development. This is consistent with Sosniak's (1990) three phases of learning and teaching: 1) Exploration of the field-specific content without the need for behaving systematically or with demonstrated skill; 2) Focus on the systematic acquisition of knowledge and development of skill; and 3) Complete commitment, whereby "virtually all of one's time, emotional energy, and other resources [are] invested in field-specific activity" (p. 156). Because of the intense focus and rigor, the second and third stages require an increased passion, an increased commitment of self.

Equally compelling is the consistency with the stage theory of talent development as reported by Benjamin Bloom (1985). Bloom's study reports that the early teachers of concert pianists were usually ordinary, but encouraged exploration and love of music. The transition to the next stage is usually initiated with a teacher change. The second teacher is more businesslike, and works on the detail and the mechanics of skill acquisition. Another stage transition occurs when the student goes to an acclaimed mentoring teacher. The focus now is on the professional product, the performance context, and the aesthetics of music. The relationship is one of respect to the teacher. Thus, we find three stages, each representing a higher degree of expertise and commitment:

- Exploratory Stage—focusing on fun and learning through exploration;
- Business-like Stage—characterized by focus, hard work, and a professional teacher-student relationship;
- Mentoring Stage—usually conservatory or professional study by the student as a disciple of an acknowledged expert.

The 1st and 2nd stages of the Facilitative Factors Model illustrate the sequential functioning of Bloom's stages, and furthermore depict a transactional relationship between expertise and commitment. In other words, increased expertise tends to generate increased commitment. Conversely, increased commitment tends to generate further increases in expertise. If we consider expertise to be synonymous with the factor *competence* of our model, and considering *competence* to be the key factor in the dynamic models, we find that increases in expertise drive the dynamic model to generate new levels of motivation and commitment. In fact, as competence increases, a qualitative shift can take place whereby commitment is launched to a new level, as illustrated by Bloom's stage theory and/or as set forth in our model's second-stage. The 2nd stage factors of passion and identity that are associated with such commitment launch the student into even higher levels of competence and expertise, thus illustrating the converse relationship.

We find, then, that the model of facilitative factors provides a theory for the transitions between Bloom's stages. As the facilitative factors increase in mutual correlation, they induce the

motivation, commitment, and effort to launch the student into the next qualitative stage described by Bloom.

Figure 5 shows an integration of the Facilitative Factors Model with the three stages described by Bloom. Between each stage is a triangle that represents the dynamic operation of the facilitative factors in our two-stage model.

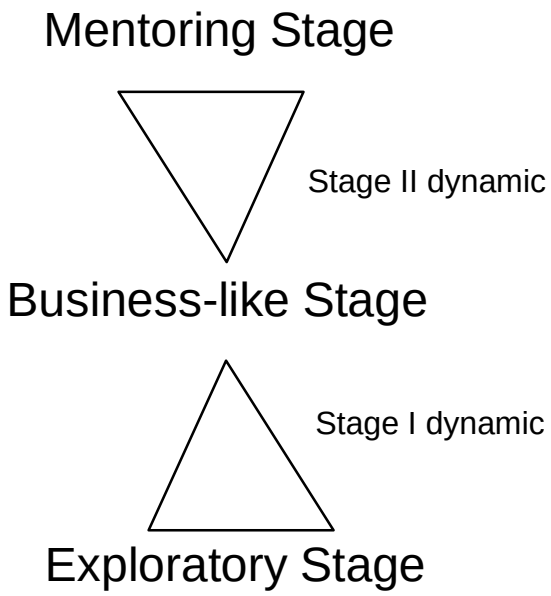

Figure 5 Transitions between Bloom's Stages of Talent Development

The student begins study at the exploratory stage, engaging in fun and non-stressful exploration of the subject activity. As competence builds and self-esteem increases from reinforcing experiences, the 1st stage dynamic generates synergistic increases in all three factors—more competence, more reinforcement, more self-esteem.

Eventually, the increased motivation and commitment escalate the student to the Industry Stage, where repertoire is more difficult and lessons are more business-like (Bloom). Though less fun, the student finds esteem needs are being met (Maslow) and deems the activity important to self (self-determination theory) due to feelings of competence through industrious engagement (Erikson).

Empowered by motives toward self-actualization (Maslow) and the developmental search for identity (Erikson), the student passionately focuses time and energy toward the subject activity. With increasing competence, stronger identity, and increasing passion, the student escalates to yet higher degrees of motivation and commitment.

Well into the higher realms of intrinsic motivation and demonstrable competence, the student makes the transition to the Identity Stage, where the student/mentor relationship is of primary importance (Bloom), and training is elevated to a conservatory or professional mode.

Conclusions

We concluded our Introduction section by overlaying Glaser's three phases of monitoring and support: 1) external support; 2) transition; and 3) self-regulation with Bloom's three stages of talent development: 1) exploratory; 2) business-like; and 3) mentoring to generate the following three stages of piano study:

1) Teachers engage children's interest and enjoyment through selecting music with which the children connect, providing extensive learning and emotional support for children's knowledge and skill development, and being the sole, or at least primary, source of feedback;

2) Teachers withdraw some of their emotional and learning support, introduce a new music literature with which children or adolescents have less connection, and guide adolescents to be more self-monitoring; and

3) Teachers account for only one source of feedback, other sources include outside listeners and the student's continual self-monitoring during deliberate practice.

However, a danger exists in reading these piano-study stages as prescriptive rather than descriptive. The three piano-study stages—as well as Glaser's and Bloom's stages—describe what one finds at each stage, but do not prescribe how to move from one stage to another. We should not interpret these stages to mean that the teacher should remove emotional and learning support in order to move the student from the first to the second stage of piano-study. In fact, our Facilitative Factors Model suggests and our data confirms the contrary. Pulling out the supports of Stage I undermines the operation of Stage II. Students at Stage II who experience absence of reinforcement, absence of self-esteem in their chosen skill, or perceive lack of personal competence will backslide in motivation, withdraw from practice, and potentially abandon piano study.

As it did with Bloom's stage theory (above), the Facilitative Factors Model explains how students *move* from less to more autonomous functioning and toward increasingly intrinsic motivation. The factors *reinforcement* and *self-esteem* at Stage I and *passion* and *identity* at Stage II indicate both the need and the mode of teacher support required to move between the stages of piano study. The 2nd-stage factors *passion* and *identity* show increasingly personalized engagement and commitment and thus suggest, at their apex, personal responsibility and self-regulation as described by Glaser.

In the double-triangle or hourglass representation of our model, Stage II balances on the foundation of Stage I. Our data analysis shows that motivation at Stage II still depends on the presence of Stage I factors. In other words, withdrawal of Stage I factors can undermine the Stage II dynamic. This has important implications for teachers. A supportive teacher should help to preserve student self-esteem by providing continued—although differentiated from Stage I—reinforcement, despite the emergence of increased autonomy and self-regulation in the student**.** This is consistent with the finding of Davidson, Moore, Sloboda, and Howe (1998) that prescribes continued positive personal characteristics in later-stage teachers. In our study, we found that students frequently dropped piano studies following a transition to a more

professionally oriented teacher. Professional qualities of the teacher may take precedence at the higher stages, but the interpersonal qualities in teaching cannot be ignored without peril.

The question is not whether a teacher should focus on either nurture or competence. Indeed, our model suggests that competence-building nurtures self-esteem. But competence-building cannot be the only skill in the teachers' professional tool bag. The Stage II teacher must also assist in the maintenance of the Stage I factors, all the while building *competence*, being a role model for Stage II *identity*, and demonstrating the *passion* to be mirrored by the student.

We suggest that the Facilitative Factors Model helps prescribe appropriate teacher behavior at the different phases of piano study, and provides guidance in determining when a teacher change is advisable, and when it is not.

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