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The Positive Role of Negative Emotions: Fear, Anxiety, Conflict and Resistance as Productive Experiences in Academic Study and in the Emergence of Learner Autonomy

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Although affect is widely recognized as a powerful force in determining students' academic success, researchers and practitioners have paid little attention to emotional barriers that often impede college success or how instructors may respond constructively when such barriers arise. The purpose of this paper is to initiate discussion of this important problem by offering a model of how an initially resistant, fearful, and/or anxious student can use emotionally unpleasant experiences to transform himself or herself into a more autonomous and successful learner. We offer *prima facie* support for this model by presenting the results of two cases of first year students. Although this model may not apply to all anxious first year students, it nevertheless has value (a) as a resource for instructors working with students who fit this pattern and (b) as an example of how the role of emotions in learning can profitably be studied.

Although affect is widely recognized as a powerful force in determining students' academic success (e.g. Bar-On & Parker, 2000; Gray, 2001, 2004; Gray & Braver, 2002), researchers and practitioners have paid little attention to emotional barriers that often impede college success or how instructors may respond constructively when such barriers arise. The purpose of this paper is to initiate discussion of this important problem through an analysis of the experiences of two students who overcame resistance as well as almost all fear and anxiety to emerge as successful and autonomous learners. Through an analysis of these two cases, we will present a case that emotions such as conflict and anxiety can positively influence learning contrary to what many instructors initially suspect.

The study was conducted in a Critical Thinking and Writing course offered through a blended learning model; a blended learning model is one that combines online and face-to-face sessions. The research was conducted in a first-year seminar at a small urban college that primarily serves economically disadvantaged adult students, many of whom are affected by what VanDijk and Hacker (2003) call "the digital divide." It, therefore, is unsurprising that many students in this course were fearful and resistant to the Internet as an educational medium. The advantages of conducting research via an online course are (a) the substantial body of relevant research and scholarship into cognitive and affective factors that affect success in online learning (Benson, 1997; Boud, 1988; Candy, 1991; Dam, 1995, 2004; Kannan & Miller, 2005; Salmon, 2000) and (b) the availability of written records of peer-to-peer and peer-to-instructor exchanges for subsequent analysis.

The case studies concern two first-year students, one male and one female. Early in the course both students expressed anger and fear of computers in general and the Internet in particular, verbally and non-verbally. In our opinion, their experience has much to teach college instructors and support professionals who work with an at-risk population, such as the one in this study, as well as with other populations in which emotional obstacles may impede learning.

Case Study

The present case study involved observing the process of learning in students in a freshman course. The purpose of the research was (a) to investigate the learning process of students in transition who show emotional resistance and (b) to use this knowledge to assist instructors and other university personnel to help these students in meeting course learning outcomes and adjusting to the university experience.

Course Description

The major learning objective of the course was to hone students' critical thinking skills in a learning environment that combined discussions in face-to-face and online sessions. Continuity in the learning process through the different learning environments was achieved by structuring the tasks so that the concepts of logical thinking (e.g., inductive and deductive reasoning, types of fallacies) that were introduced in the classroom were applied to open-ended debates on controversial topics (such as cloning and euthanasia) on electronic discussion boards.

Student Profile

The students in this study were all minority, working, adult, returning students, all of whom showed weakness in math, basic writing, and study skills and a

limited understanding of college level learning expectations. For these students, attaining success in the first semester was often a crucial factor in determining whether they would continue in their pursuit of a college degree (Hyer & Joslin, 1998; McKenzie & Schweitzer, 2001).

That this student population began with poor computer literacy skills helps clarify why many of the students experienced anxiety in the beginning. The 10 students (8 male, 2 female, average age 28) in the class had all returned to college after an average hiatus of 8 years. Every member of the group had limited prior experience with the computer and the Internet (coming from the disadvantaged side of the digital divide). None of them owned computers at home. Information search using the Internet was completely unknown to them. While they had heard of search engines such as Google, they had never used them before. One student had some computer experience (including access to a computer at work and some experience creating documents using a word processor and sending and receiving email.) Otherwise, even at work, none of them had used computers. They had no experience using a word processor to create documents or emailing to communicate professionally and personally. They got their first email accounts after joining the college. For all of the students, this was their first formal online learning experience. Thus this cohort was risking its potential for academic success by enrolling in a course built for a hybrid learning environment.

In this paper, we will report case analyses of two students in the course, whom we will identify as Marcia (the one student with some computer experience) and Simon. We use pseudonyms to protect participants' privacy and confidentiality. Although they were anxious about online learning, both Marcia and Simon described themselves as confident and competent learners at the beginning of the course.

The Instructor

The instructor (co-author of this paper) was a full-time faculty member with eight years of teaching experience and a background in critical thinking and online learning. While recognizing her skill as a teacher, we believe that our results are typical of student learning in a competently taught college level course, not the result of unusual methods.

Data Collection

Data for the case studies were compiled over the course of the semester from a variety of sources:

1. Student assignments submitted in writing and oral presentations in class
2. Student assignments in the form of online postings and peer-learning tasks on the online discussion board
3. Record of verbal and email interactions between students and the instructor
4. Informal observations by the instructor of learner performance and learner behavior
5. Surveys administered through written questionnaires conducted at the beginning, middle, and end of the course
6. Self-reports from the students in post-course interviews

Case Study Data: Methodological Considerations

Case study research by its nature is formative and, therefore, cannot support strong generalizations on its own. Nevertheless, the close analysis of the individual case can reveal patterns of thought and behavior impossible to detect with summative methods. It is most useful and appropriate in seeking to describe phenomena and generate hypotheses that go beyond common sense. The role of affect in learning is a good example of when case study methods are appropriate. Even though most experts agree that affect must play an important role in learning and instructors are continually confronted by the kind of conflict and resistance documented here, researchers committed to summative methods have had almost no success either in explaining its role or in helping instructors cope more successfully. We believe that case studies such as the present one offer a productive alternative to summative methods that hold substantial promise of advancing our knowledge of this and other complex kinds of learning.

Results

Evidence of Affective Change

Over the 15-week period, Marcia and Simon showed signs of change in their emotional response to learning, especially when viewed in the light of their dislike for the online learning environment at the beginning of the course.

- During the first interaction with the instructor, which was a face-to-face session in class, Marcia and Simon showed resistance to the prospect of working online:
    - They expressed their unhappiness and anger verbally on being informed that a hybrid course was a combination of face-to-face and online components. ["I don't want to be in this class."]

  - Openly, they stated that they were uncomfortable with technology. ["I have never been in an online class before. I don't know enough about technology."]
  - During the post course interview, they talked about their feelings of frustration and hopelessness they had experienced at the beginning of the course. Both Marcia and Simon were unanimous in attributing their frustration to a lack of familiarity with computer-based-learning.
  - In the self-report, they claimed that they showed resistance in the first session because they thought that inexperience with computers could lead to a poor academic performance and, thereby, a failing grade.

- In week 2, Simon and Marcia attended a training session with the rest of the class in the computer lab. During this session, the instructor observed the following:

  - Marcia showed anxiety by being fidgety on the keyboard.
  - Marcia mentioned that the proximity of the instructor looking over her shoulder while she was posting a message online was making her nervous and she requested the instructor to keep away from her.
  - Simon seemed calm outwardly, but in his hello message to the class he professed feeling anxious about his first online experience.
  - In their response to the hello messages posted by their classmates, Marcia and Simon also stated that although anxious, they were enthusiastic about their online learning experience.

- In week 5, Marcia and Simon completed an online task independently for the first time. After this point, neither Marcia nor Simon expressed any fear or anxiety to the instructor regarding accessing Blackboard and posting their work. The instructor inferred an improvement in comfort level based on observing the on-time submissions and the improved confidence by way of assertions when it came to taking a clear stand.
- Intermittently, between weeks 6 and 14, Marcia and Simon expressed happiness at the progress that they were making and indicated via email and informal chats that they were mainly enjoying the electronic debates with the class. One such email from Simon read, "I can't wait for you to post the next assignment."
- Marcia's subsequent behavior contrasted markedly with her lack of comfort with technology in the beginning. For example, she was prompt in taking leadership by posting congratulatory messages and encouraging a peer who was lagging behind.
- Simon, for his part, showed signs of being a more engaged learner when compared with the beginning of the course by proposing alternative assignment topics in week 11.
- Also, Simon showed a greater sense of personal competence when he proudly shared with the instructor how he had learned to present his argument more logically by observing the postings of his classmates.
- According to Simon, his confidence using technology had improved immensely by mid-point. In a discussion with the instructor, Simon explained that he owed this improvement in confidence to the tutoring that he had received from one of his computer-proficient college-mates.
- The written comments in the self-report at the end of the course were a testimony to the change in Marcia's and Simon's feeling about learning online. Their description of the learning process highlighted three significant changes:

  - In the beginning, Marcia and Simon had experienced fear and frustration, and showed resistance to technology.
  - In week 5, when they had to complete their online assignment independently in asynchronous mode, they had suffered from anxiety but had managed to complete the task without external support.
  - By the end, they claimed to feel confident in the online environment and expressed an enjoyment in learning online.

Evidence of Improved Skill with Technology

When the course began, Marcia had had some experience with email and working on Word documents but no experience with a Course Management System (CMS), such as Blackboard™. Simon, on the other hand, had no experience with creating word processing documents, emailing, or searching for information on the Internet.

Given that this was their first online learning experience, the orientation in the first week of the

course was their first exposure to the Course Management System. During this training session, the instructor introduced basic skills such as accessing the Blackboard™ course site's URL, learning to log-in, and navigating through the different sections of the course web site. In addition, the students participated in an introductory electronic discussion with the class by communicating through hello messages. As a follow-up in week 3, their first online task for this course was performed under the guidance of the instructor in the computer lab.

- A comparison between observations made early (first six sessions) and late (last six sessions) during the course revealed that Marcia and Simon made significant improvement from initially being novice users of Blackboard™ in general, and the discussion threads in particular, to knowledgeable users. Despite lacking these skills at the beginning, by mid-point (sessions five and six), neither of them had trouble doing the following:
    - Launching an internet browser
    - Accessing the course web site
    - Logging-in successfully
    - Reading the announcement section
    - Referring to task descriptions under the course documents section
    - Entering the discussion board section
    - Reading and posting messages
    - Participating in a threaded discussion by responding to peers
- During weeks 4, 5, and 6, when in doubt, Marcia and Simon independently sought the assistance of the instructor on multiple occasions regarding opening relevant session documents and posting a response to the relevant discussion board sections.
- By week 7, Simon and Marcia had mastered opening and reading announcements, composing messages on the discussion board or posting them to the appropriate sections or responding to their classmates. In the last 5 weeks of the course from weeks 11 to 15, Marcia and Simon made no mistakes in logging-in, accessing, reading, or posting assignments and performed all of these tasks independently.
- For session 10, Marcia submitted three postings in developmental spurts for the same activity within a time period of two hours. [Posting one at 9.43 pm, posting two at 10.04 pm, and posting three at 10.38 pm]. In her post-course interview, Marcia mentioned that she felt comfortable enough to use her technology skills as she progressively developed her thoughts in a reflective asynchronous mode.
- In the second half of the course, Marcia and Simon used email when they needed clarifications regarding deadlines or specific issues related to the requirements of the assignment. This was in contrast to the first half of the course during which period the instructor had not received any emails from them. Simon had stated in an informal conversation with the instructor that he had avoided using emails in the first few weeks as much as possible because he lacked confidence in his own ability to use technology. Simon stated being more comfortable with stopping by the instructor's office for informal chats to discuss his performance in the course. For one who had begun very hesitantly with emails, Simon began emailing the instructor around week 6 to seek clarifications, to help the instructor obtain video material, or just to discuss specific learning topics. In the second half of the course, he had emailed the instructor six times regarding different issues related to his learning.
- After week 6, Marcia's and Simon's ability to complete all online tasks without help from the instructor clearly demonstrated an improved skill set with technology. (see Table 1)

Evidence of Improvement in the Demonstration of Critical Thinking Within the Course

Learning to progressively create sound written and oral arguments by understanding and applying the concepts of logical thinking was a major objective of this course. Both Marcia's and Simon's writing showed evidence of progressive improvement in critical thinking. We will examine Simon's and then Marcia's contributions to course online discussion boards to understand their progress in the demonstration of critical thinking.

- The instructor observed that early in the course, Simon struggled to avoid viewpoints that were wishy-washy even though he was able to recognize vagueness in a peer's writing. Simon also had difficulty writing a thesis statement in week 3, having not been exposed to this concept in writing before. This challenge was two fold in nature: (a) He was not sure how to take a clear stand on an issue, revealing difficulty with logical thinking, and

(b) He had difficulty as well with his writing (i.e., expressing his opinion clearly and succinctly in one or two sentences). For the very next task in week 5, Simon took a clear stand and attempted a thesis statement in the introductory paragraph.

- Furthermore, in the beginning Simon had difficulty in presenting his argument cogently. For example, he struggled to introduce assumptions or draw logical conclusions from premises. Also, Simon seemed unaware that it was important to present assumptions and was unable to anticipate an alternate point of view. Neither did Simon try to refute an opposite point of view to strengthen his stand.

In the latter half of the course, Simon (who had earlier not explicitly introduced assumptions in his writing) began to present his assumption as part of his information search. In week 5, Simon began by explaining his understanding of the given topic and clarified his assumptions. In week 10, Simon offered an explicit refutation when presented with an opposite point of view thereby strengthening his own stand.

- Simon's ideas lacked consistency in their supporting details and overall coherence in the beginning. (For example, he stated that it might be okay to clone animals for medical research, but contradicted himself in a response to a classmate by suggesting that "it is wrong to take any life."). His thesis, supporting arguments, and conclusion often were unrelated to each other and, therefore, presented a disjointed narrative.
- By the end of the course, substantial improvement in the quality of Simon's reasoning was evident. For example, (a) supporting details presented were relevant and showed effective use of information search; (b) supporting arguments were usually but not always relevant to the stated thesis, (c) legitimate authorities were cited to substantiate his argument, and (d) broad principles were offered in support of his stand.
- Progressively, Simon's presentation of ideas became more organized. In the first few weeks, his comments on the discussion board were short (two to three lines only), jumbled, and lacked a clear beginning, middle, and end. From week 6 onwards, the responses were longer (varied from half a page to a full page) and logically organized into paragraphs. Gradually, the notion of a beginning introduction, body, and conclusion was clearly discernible in the writing.
- In the beginning, Simon presented his stand in the first assignment as a short comment with hardly any supporting evidence. He did not show any evidence of research conducted. Simon's first and second assignments showed no apparent understanding of how to develop a systematic argument. By the end of the course, the assignments posted by Simon on the discussion board were much different. He had gathered information on the given topic before taking a stand. Simon's use of detailed examples was effective in supporting his argument. Simon demonstrated the improvement in research skills by presenting statistical evidence and by paraphrasing referenced sources.

The journey of the learning that Marcia went through was quite similar to that of Simon.

- For the first task, Marcia settled to describe the problem instead of taking a stand. However, by the end of the course, Marcia showed a genuine understanding of the importance of expressing and explaining a stand in an argumentative paper. For example, all of her final three tasks exhibited (a) analytical thinking exemplified in a clear stand, (b) an understanding of the difference between describing the problem and taking a stand, and (c) recognition of clarity when it appeared in her peers' writing.
- Gradually, Marcia developed her skills in building details to support her argument. In the first 4 weeks, her arguments were often weak because they lacked supporting details or because the support that Marcia provided was not relevant or explicitly linked to her claim. By the end of the course, Marcia's assignments included a stand and relevant support. Details presented in the body of her paper directly related to the thesis. Marcia used references correctly in her argument and tried to persuade the reader by giving reasons for favoring these sources.
- Before week 5, Marcia could not appreciate opposing viewpoints and on one occasion sounded defensive in response to a classmate's opposite viewpoint. She hardly responded to a classmate with an opposing point of view. In addition, she seemed to struggle to persuade her classmate that her stand was right. While Marcia had only focused on presenting her argument in the first 4 weeks, she had not considered refuting a peer's opposing view as part of her strategy. Marcia showed

appreciable progress in using rebuttals as part of her debate. In week 5 in the course, Marcia formally acknowledged a peer's comment on the discussion board, thereby showing signs of taking other viewpoints into consideration. After week 5, Marcia provided useful examples as a counter point to refute her classmates' stand. In week 7, Marcia questioned a peer's opposite point of view more directly. Through this posting, she also demonstrated an improvement in her ability to relate the stand, support, and conclusion effectively.

- Marcia posted a message modifying her viewpoint on the topic of euthanasia about 10 days after the class had moved on to the next task. During an end-of-the course interview, she explained the need to post her change in viewpoint and suggested that her reflective thought process was strength for her as a critical thinker.

Evidence of the Development of Learner Autonomy

Marcia and Simon showed evidence of the emergence and gradual development of autonomy in the online learning environment by taking greater initiative and becoming less dependent on the tutor.

- At the beginning of the course, Marcia and Simon took instructions and followed the steps sequentially without asking many questions about the course work. They visited only the suggested list of sites for information gathering and did not do any additional information search. In week 3, Simon submitted his work online late indicating perhaps a lack of initiative.
- Initially, Marcia's and Simon's interactions with the instructor were limited to the classroom. While they participated actively in the regular class by raising questions, participating in small group discussions, etc., this behavior was limited to face-to-face interactions. In the online environment, they did the minimum of posting their assignments.
- It was not until week 6 that they showed signs of being "engaged" on the discussion board. Marcia took the initiative to contact the instructor in week 5. She arranged to meet with the instructor to correct a posting that she had posted under the wrong thread. Between weeks 5 and 10, Marcia emailed the instructor four times to resolve her doubts regarding the requirements of the assignments. In week 11, Marcia informed the instructor regarding a technical glitch in the CMS of which the instructor had not been aware.
- Simon who had begun the course with no email experience, emailed the instructor three times between weeks 6 and 14. His questions varied from checking whether he was on the right track to seeking a confirmation about deadlines. For the online tasks in week 5, 7, 12, and 13, Simon submitted his assignments early.
- Marcia and Simon went beyond the minimum course work requirements after week 5. When faced with the first online task (in week 3) of having to conduct an information search and then take a stand on the topic of cloning, they followed the instructions sequentially. In contrast, for the very next online task (in week5) they began to show signs in their learning of the emergence of autonomy.

Instead of limiting their work to responding to the instructor's question, after week 5, they initiated a cyclic communication process by creating an iterative loop of postings on the threaded discussion board that helped them reflect on the given problem and draw their classmates into a discussion. Both Marcia and Simon shared their information-search with their peers and discussed the different perspectives expressing the need to not be coerced to take a stand right away.

- One of the many ways to observe the development of autonomy is to monitor the decrease in dependence on the instructor. For example, in the first 5-6 weeks, both Marcia and Simon waited for the instructor to suggest when help was needed. But by mid-point, Marcia and Simon showed greater initiative in their interactions by asking questions by email, by visiting the instructor in the office, or by having informal discussions in the hallway. Marcia and Simon judiciously exploited face-to-face course sessions to seek clarification regarding online tasks.
- Because they lacked computer skills at the beginning of the course, both Marcia and Simon needed substantial emotional and technical support during the first 3 weeks of the course. In weeks 6 and 7, instructor support consisted only in providing occasional guidance. From week 7 on, Marcia and Simon posted all of their assignments correctly under the relevant threads and followed the instructions posted in the announcement and discussion board sections. In the second half of the course, Simon and Marcia completed all of their online tasks

successfully with no prompting or guidance from the instructor.

- The frequency and degree of instructor intervention (as a means of facilitating online discussion) were also important factors to indicate that Marcia and Simon were becoming more independent as learners. The instructor's presence was greatest during the first 5 weeks of the course. During this time, she directed Marcia and Simon in matters of netiquette, in technicalities of using the CMS, and in formulating learning objectives such as taking a strong and clear stand.

However, by week 10, Marcia and Simon were participating so actively with the whole class that the instructor became primarily an observer and intervened only when necessary. From week 10 on, the number of instructor postings dwindled and focused on providing direct feedback at the end of the discussion.

Evidence of Breakthrough Points

Even though they began with anxiety, frustration and anger at being challenged to come out of their comfort zone and enter into an unfamiliar online learning atmosphere, they made substantial progress with technology and conceptual analysis. How and when did Marcia and Simon make this transformation and was this change cumulative in nature or were there specific turning points in their learning?

From the data presented in the previous sections, it became clear that a breakthrough for both Marcia and Simon took place in week 5. Evidence includes the following:

1. Demonstration of improved technology skills evident in the completion of the online task without tutor support.
2. Improved confidence in learning and a lessening of fear and anxiety of the online learning environment.
3. Increase in the degree of independence in learning that was measurable by lesser dependence on the tutor.

To see the breakthrough in greater detail, reexamine certain pivotal points in their learning process by way of summarizing and restating evidence presented in the earlier sections. Among the different domains of learning, a major breakthrough was visible in the feelings toward online learning. The breakthrough point in overcoming fear of technology had occurred around week 5 when Marcia and Simon had submitted their online assignment on time independently with almost no support from the tutor. The breakthrough was reflected in Marcia and Simon's ability to be more in charge of their learning. From conversations with Marcia and Simon, the instructor learned that concerns over demonstration of critical thinking and anxiety over wanting to perform well enough to get a high grade continued for the rest of the course. Nevertheless, a major transformation was visible regarding the ability to successfully handle the technology skills as Marcia and Simon had completed the given online activity successfully. After this point, there were hardly any questions from Marcia and Simon about "how to access the course website," "how to log-in," or "where to click" to respond to a peer. The focus had changed to "how to improve the quality of logical thinking in my assignments."

Generally, in the period following the breakthrough stage, Marcia and Simon showed improved comfort by being proactive in asking questions and seeking clarifications via email. They displayed a greater engagement in the online discussions by posting longer, more detailed, well-developed sound arguments. Marcia even began to take on a leadership role in motivating her classmates through encouraging comments. Marcia and Simon exchanged congratulatory remarks on taking clear stands or for presenting supporting details based on research. Undeniably, by the end of the course, Marcia and Simon showed a new enthusiasm for learning online. Here is an excerpt from Marcia's self-assessment:

> In spite of my apprehension of this online class, I have done exceptionally well. I was at first not very comfortable with the on-line class. I felt that the class would not be as effective as a traditional classroom setting. I found this to be a fallacy. The class was very effective; it allowed me to embark on a new instrument of learning, the Internet. I found it more comfortable and stress free.

From a combination of tutor feedback, peer assessment, self-assessment, and grades, Marcia perceived that her performance was meeting the course goals and her personal expectations as a learner. Notably, the breakthrough point is identifiable by the fact that neither Marcia nor Simon claimed that fear of technology was affecting their performance.

The main result is that all of these changes appeared to occur at approximately the same time, including (a) changes in feeling toward the course, (b) changes in comfort level and skill with the online learning environment, (c) performance in course assignments, and (d) demonstration of learner autonomy. All of these factors were tied together by an important episode in the learning performance: completion and submission of the second online assignment autonomously in week 5.

With evidence consisting of only two case studies, one may postulate that this simultaneity was purely a coincidence. Nevertheless, this evidence does provide the basis for a *prima facie* case that all of these changes may be part of an interconnected but single developmental process.

Discussion

College instructors, especially those who work with an at-risk student population, such as the one presented here, are extremely familiar with the profoundly detrimental effect that emotional barriers can often exert on academic success (Whitman, Spendlove, & Clark, 1984). In contrast, in the present study, we observed students overcome serious affective barriers to achieving academic success. As this happened, their emotional reactions to the instructional medium and course content changed from anger and resistance at the beginning to enthusiasm and involvement by the end.

How might an unpleasant experience such as conflict or anxiety have a positive effect on learning? The role played by this kind of experience might involve substantial emotional complexity. A possible model for this is the account offered by Freud (1940/1963) of how early resistance in psychotherapy is crucial for the later emergence of transference and hence for the effectiveness of therapy.

The students' personalities, worldview, and self-image as learners may also, in part, explain the positive outcomes that eventually emerged. For example, Simon and Marcia both described themselves as confident and motivated learners at the very beginning of the course. Dweck and her colleagues (Dweck, Chiu, & Hong, 1995; Dweck, 1999) have shown that learner's views of their own thinking and learning is related to their learning success. It is reasonable to postulate that something similar is happening in the case of Simon and Marcia.

It is difficult to say how quickly this kind of emotional transformation affects initially resistant students, even in the case of extremely well taught and well managed courses. But even if only a relatively small percentage of students made this transition, the present study contributes to knowledge in at least three ways.

1. As an existential proof that this kind of transformation does happen.
2. As a partial description of intellectual and emotional change on the part of students in transition (useful to instructors who monitor their students progress throughout a course as well as for researchers).
3. As a study that will hopefully lead to further research that will clarify the conditions that optimize the likelihood of this kind of transformation.

Conclusion

Evidence for and Interpretation of Affective Change

Describing the experience of a particular emotion is not in itself new (e.g., Ekman & Friessen, 1978; Ekman & Rosenberg, 1997). What is new, however, is the analysis of the place of this experience within an ongoing learning process. For both of our subjects, we observed that changes in emotional state happened concomitantly within the same time frame as specific cognitive and behavioral changes. These changes included greater proficiency with technology, improved mastery of course content and (in our opinion of greatest interest) evidence of increase in the degree of learner autonomy. Evidence of the participants' emotional states comes from three convergent mutually-supporting sources. These were

1. Research seeking to document the concurrent self-report: The participant made one or more statements that described his or her experience of a particular emotion.
2. Behavioral observation: The participant acted in a way that would normally be accepted as a symptom of the emotion (e.g., avoiding a person, place, or activities when the subject said that he or she was afraid of it) .
3. Retrospective self-report: In a follow-up interview, the participant reported retrospectively that he or she had experienced the particular emotion at the time in question.

Of particular interest is the fact that the observed changes in feelings about the course, for example, increased level of comfort with the instructional medium, improvement in quality of course work, and increase in degree of demonstrated learner autonomy all appeared to happen around the same weekly session of a 15-week course. First, this simultaneity offers *prima facie* evidence that they may all be in some way causally inter-related. Second, it may be useful to instructors in trying to distinguish stable changes in student reactions from random fluctuations.

The evidence that affect may play a role in a "plateau-to-plateau" learning process may be especially significant. First, it may reflect a similarity with patterns of change familiar from other domains. For example, according to Freud (1940/1963), therapy patients typically go through a period early in treatment

when they show anger with the therapist and resentment of the therapeutic experience (but not to the point that they actually withdraw.) Since Freud, clinicians have called this reaction resistance. At first, Freud saw resistance as a sign that the therapy was not succeeding. But with experience, he came to observe that resistance at the beginning was not only positive, but actually essential for the later success of treatment. As treatment progresses, resistance disappears and is replaced by an exaggerated admiration of the therapist, bordering at times on worship what Freud called "transference." While nothing in this case study had the intensity of a typical transference reaction, the surface similarities in process may still reflect some similarities in underlying cause.

First, it is noteworthy that the pattern of resistance and acceptance occurs outside a clinical context as well, primarily under circumstances likely to be stressful. Bowlby (1969, 1988), Ainsworth, Blehar, Waters, and Wall (1978), and many other researchers have documented that infants and children, after the age of 8 months, show a similar pattern in reaction to separation from their primary caregiver. Kubler-Ross (1972) makes a similar observation about adults after the death of a close family member.

Second, in addition to this relationship with the process of resistance and transference, the present evidence of affect playing a role in plateau-to-plateau learning supports earlier claims that affect plays a crucial role in this kind of learning (Miller, 1986; Wadsworth, 1979).

Third, it connects this study with well-established cognitive research that has shown numerous instances in which cognitive change occurs through discrete transitions. Developmental studies by Piaget and Inhelder (1941, 1948, 1959) first presented this pattern, but many more recent studies have shown it as well. The work of Salmon (2000), a leading proponent within the field of online learning, is a case in example. This result provides support for the claim of Gray and his colleagues (Gray, 2001, 2004; Gray & Braverman, 2002) that affect and cognition, at least some of the time, work in conjunction.

The Relationship Between Affective Change and Increased Learner Autonomy

One especially encouraging feature of the documented pattern of change, given that these students are in transition, is that it led not just to tolerance and acceptance of previously upsetting experience - such as that of the online learning environment - but a shift to enthusiasm and commitment to them. Especially significant was evidence of substantial learner autonomy in the two students by the end of the course. This evidence included (a) doing supplementary work (outside reading, extra contributions to online discussion boards) beyond that required for passing the course, (b) rethinking arguments presented in class, (c) playing a leadership role in helping and encouraging peers, (d) working ahead of the rest of the class, (e) volunteering for extra assignments, and (f) expressing interest in self-paced learning.

Even though learner autonomy is a crucial trait not only for college success but also for developing the habit of life-long learning that many colleges encourage, models of how it can emerge are rare. To see this especially in academically under-prepared first-year students returning with trepidation to formal education augurs well because this initial transformation enables further development in autonomy in other learning contexts. Learner autonomy has been defined variedly as "a capacity for detachment, critical reflection, decision making, and independent action" (Little, 1991, p. 2), "'the ability to take charge of one's own learning" (Holec, 1981, p. 3) and "a capacity and willingness to act independently and in co-operation with others, as a socially responsible person" (Dam, 1995, p. 1). Phillip Candy (1991, 2004), author of the most comprehensive review of learner autonomy research, views it as a personal trait that implies a capacity for lifelong learning rather than a habit of mind that can develop out of intentionally designed educational experiences. Contrary to what Candy states, the experience of Marcia and Simon provides evidence in favor of a developmental view. This fact suggests that instructors can reasonably hope to assist even fearful learners and those who lack self-confidence in their path toward becoming confident, skillful, and autonomous pursuers of knowledge.

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